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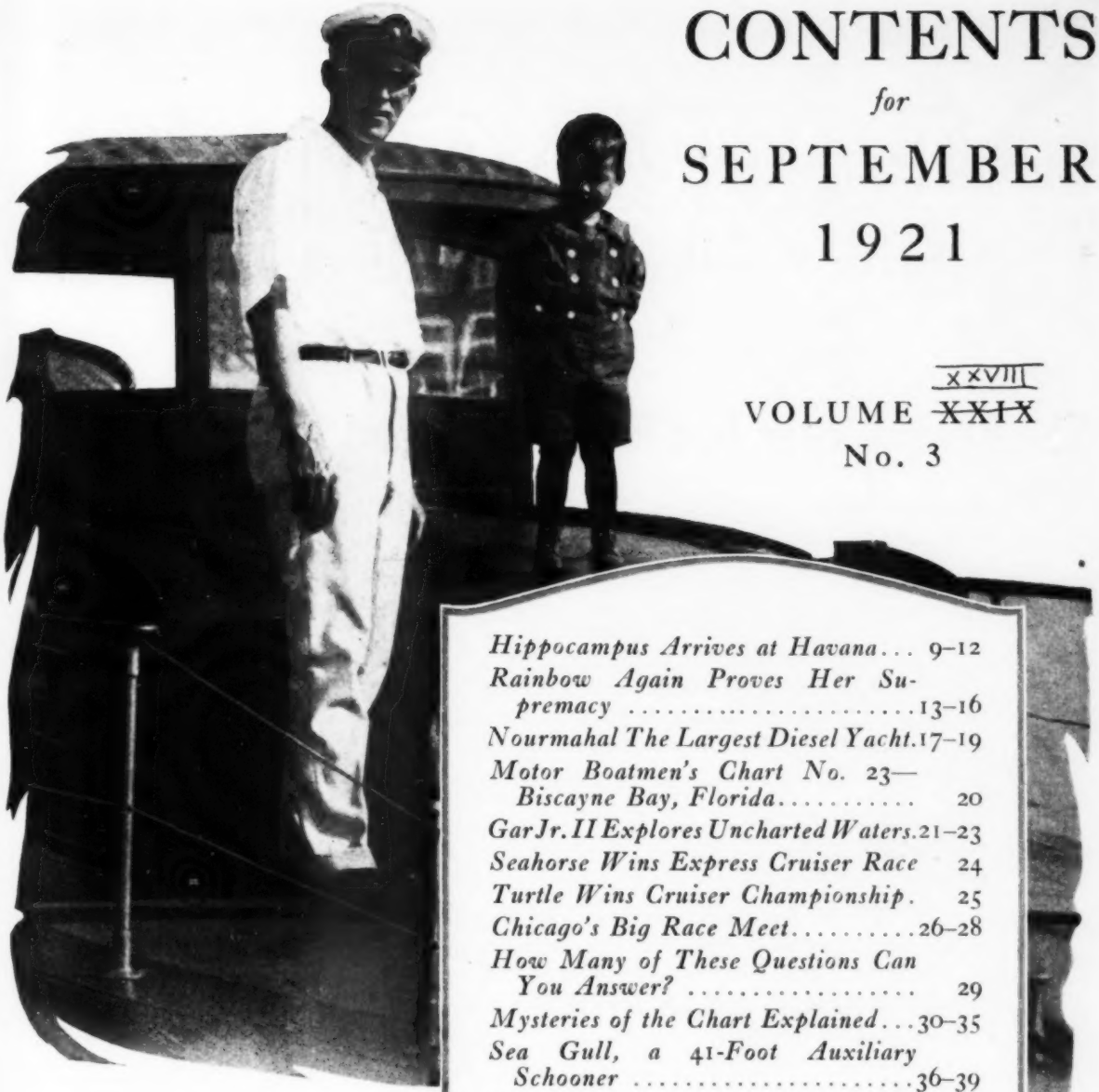

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Gar Wood and Gar Wood, Jr. On September third and fifth in particular, the eyes and thoughts of not only every loyal American but every boatman in the world will be focussed on the efforts of these two sportsmen. On these days at Detroit, Mich., America will be defending the British International Trophy against the fastest motor boat the rest of the world has been able to produce, Maple Leaf VII owned by Sir Mackay Edgar of England.

Miss America I and Miss America II, the boats owned by Gar Wood and little Gar, Jr., are the two craft with which America is expecting to retain the motor boat championship of the world. Every American citizen should be proud of the entire Wood family, all of whom have contributed so generously toward making America lead the rest of the world in this great sport. It is even probable that a Wood will be at the helm of each of the three boats comprising the American team which will race Maple Leaf VII on September third and fifth. We know that every motor boatman in this country joins MoToR BoatinG in wishing Gar Wood the best of success in this great international event.

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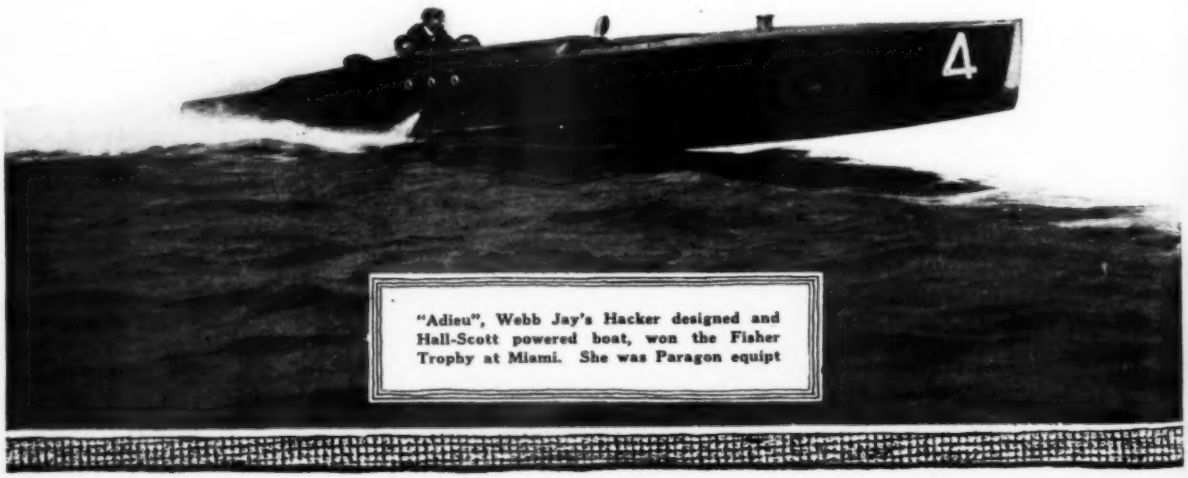

"Adieu", Webb Jay's Hacker designed and Hall-Scott powered boat, won the Fisher Trophy at Miami. She was Paragon equipt

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PARAGON REVERSE GEARS

"Spendthrift II," Mr. Halsey's Van Blerck powered cruiser, won the Block Island Race, likewise Paragon equipt

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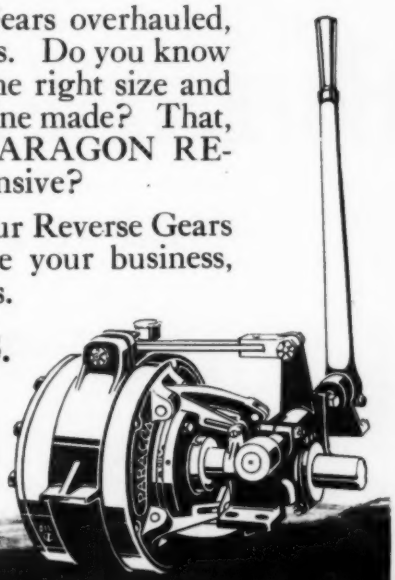

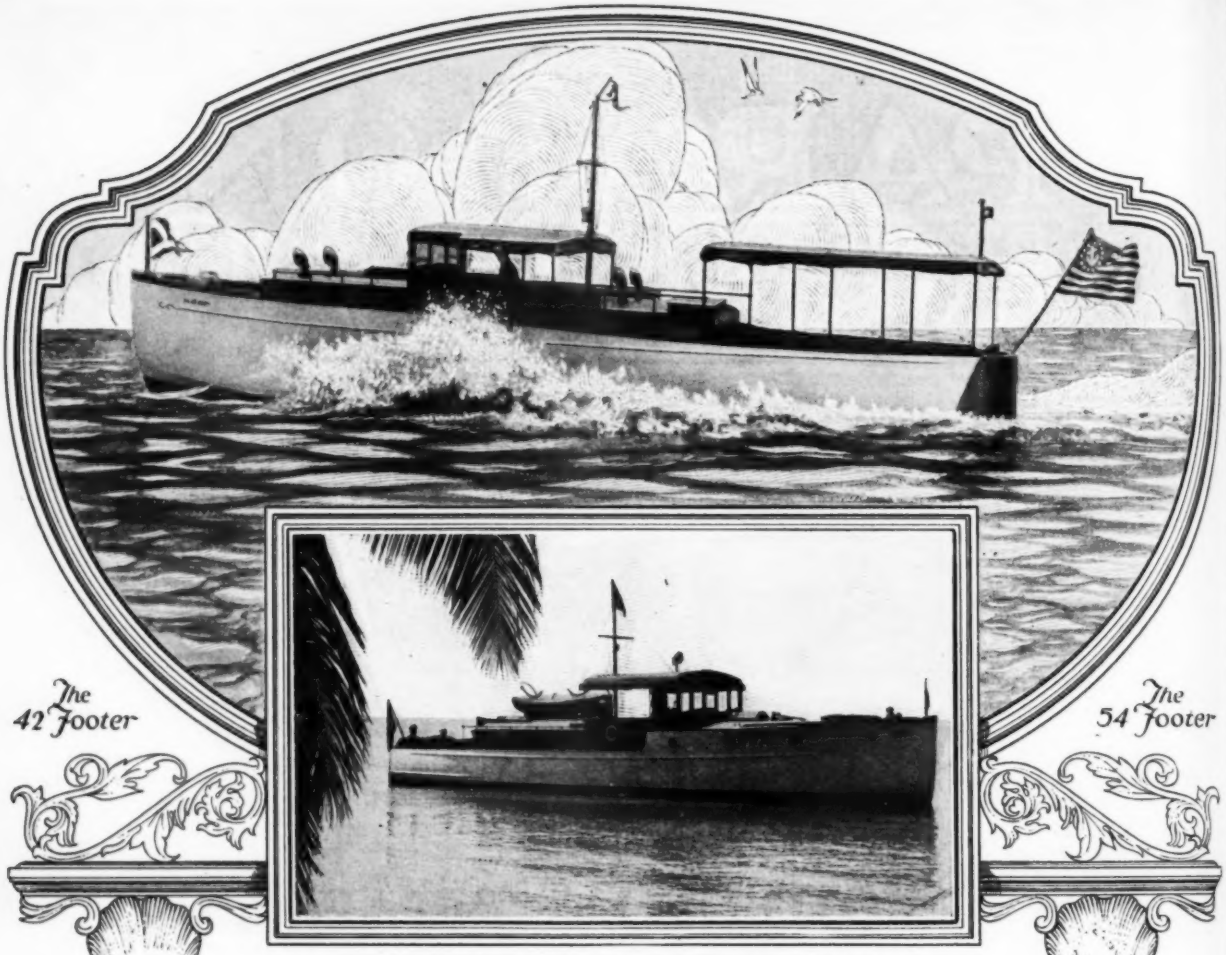

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MOTOR BOATING
119 WEST 40TH STREET
NEW YORK

Photographs by Author and Crew

A friendly tug helps when the wind fails

Hippocampus Arrives at Havana

Auxiliary Yawl Makes Its First Foreign Port on the Long Voyage of Exploration After a Hard Tussle With Contrary Weather

By Alfred F. Loomis

EVERYONE who has cruised extensively is aware that itineraries are made only to be altered and that promises to gain or leave a port at any stated time are of the substance of gossamer. Knowing this, I yet ventured to predict in print that the run of the 28-foot Hippocampus from New York to San Francisco would commence with a few rapid tacks down the east coast of the United States, continue with a meteoric flight through the West Indies, and conclude with a carefree beat up the Pacific Coast. Had I been Croesus and able to expend untold sums in gasoline we might have carried out this program, subject, of course, to the vagaries of all mechanical contraptions. But, being more comparable to a certain domestic fowl that was wont to scratch gravel in the portico of the late lamented Job, I am dependent upon the whims of the wind—and find that my predictions are less than worthless. We are now, eight weeks from New York, only ninety miles out of the shadow of the Stars and Stripes.

For several weeks we Hippocampi were given to dating events from the night of the Big Wind off the Delaware Capes. Other circumstances shrank into insignificance by comparison with the occasion on which Joe Chambers, then known as John Albert, revealed his skill as a yachtsman extraordinary, and Joe Squibb, alias Paul, won the right to his designation of Sea-Going Gadget. We endured other storms of wind and rain, wore our oil-skins threadbare, and became inured to biting spray—but these supplementary affairs were unworthy of mention to the old and new friends we met en route.

Then came the night at Mayport, Fla., when a barge load of rock, descending on to our deck, rolled our cabin house under, and gave us a new topic of conversation. The storm is forgotten, except that we remark parenthetically that Hippocampus has proved her seaworthiness, and we reckon all our good fortune and bad luck from the night of the Avalanche. We are lucky indeed to be alive to tell about it, but unlucky in being a bad two weeks behind schedule because of it. For we lay a week in Jacksonville undergoing repairs and waiting for the paint to dry on our deck and side, and by so doing lost the fine northeast wind that would have blown us in jig time to Miami.

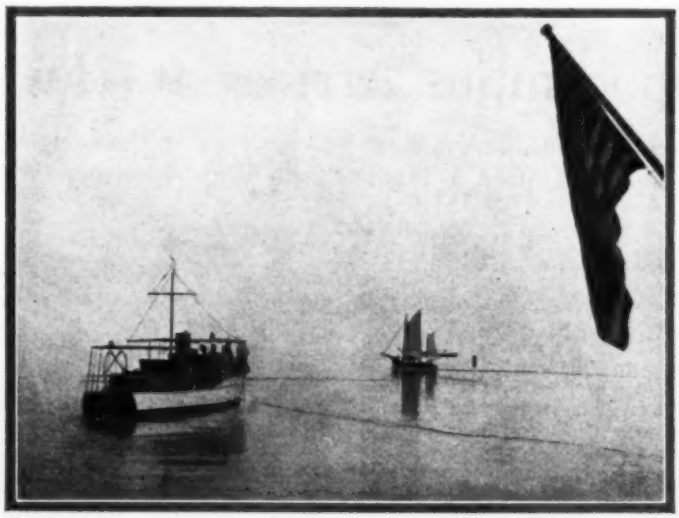
When, on the morning of Sunday, June 12th, we were

We witnessed the public and exceedingly efficacious baptism of a band of negroes in the waters of the St. Johns River

finally ready to shove off, we delayed yet another hour to witness the public and exceedingly efficacious baptism of a band of negroes in the waters of the St. Johns. These devout Baptists, indifferent alike to the clicking cameras of the white folks and the crude oil which floats on the surface of the river, underwent their services near the mouth of a sanctimonious old sewer to westward of Hippocampus, chanting continuously a stirring baptismal hymn. So captivating were both refrain and music that the two Joes, waiting impatiently to cast off our mooring lines, succumbed to their lure, and now we weigh anchor and haul halliards to the newest of sea chanties—

"Whosoever will, let him come,
"Let him come,
"And drink of the river of life."

So, humming and whistling to memorize the air, we let go, waved good-bye to my old shipmate, Donahue, and stood down the river of St. Johns Past the scene of the avalanche we went, and through the jetties for which the invading rock had been intended, and when we were outside and found the day fair and the breeze unfavorable, we thought it as good a time as any to photograph Hippocampus under sail. The crew brought the yawl into stays and I jumped, camera in hand, into our rejuvenated dink, and for the first time gained an outboard view of the ship in action. She is every inch a ship, viewed from any angle, and I must say that I am proud to be one of three who are pointing her inquiring nose into new harbors and along strange waterways.

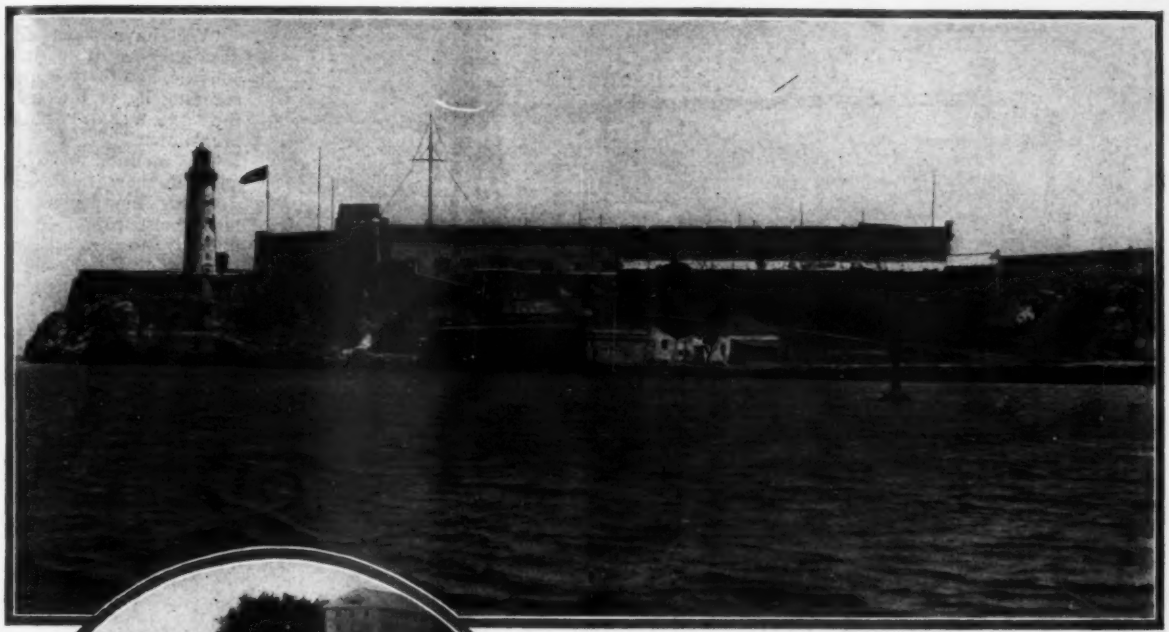


Zumbrota, the motor cruiser of the commandant of the Key West navy yard

Except for the short time that she was sailing before the eye of the camera on that day she had little opportunity to run her gait, for the wind was dead against us. During the evening and night we beat NxE and reached SSW, the closest we could come to our southeasterly course, and in so doing we began a monotonous tacking contest that lasted for six whole days. The wind veered from east to southwest and back again, its shifts usually catching us in a poor position with respect to the beach to take advantage of them, and not for five days and twenty-three hours of the six did we sail with the wind abaft the beam.

This is the discouraging part of sailing, but to make it worse, we were frequently becalmed and at all times were subject to the northward set of the Gulf Stream along the Florida coast. Contrary winds and calms we endured with some equanimity, the weather being otherwise perfect, but when, on the morning of the third day out of Jacksonville, we found ourselves somewhere off Cape Canaveral and the cobalt blue of the water told us that we were in the full strength of the Stream, we lost our ample fund of patience and started the Palmer motor. Leaving all sail set to steady us in the seaway, and heading as close to the southwest wind as we could without luffing, we soon picked up Hetzel Shoal buoy on our port bow, and then lowered the mainsail and left the smaller sails flapping as we steered to pass it close aboard.

In time the breeze died away and we decided to continue past the cape and keep the motor running until we had another slant of wind. By now we had had enough ex-



We feel a little proud of our first land fall in entering a foreign port. Morro Castle of historic fame at Havana, Cuba

The exec convoys the skipper ashore for matches at Palm Beach, Florida. The "Breakers" in the background

perience with the weather to forecast with some accuracy the direction of the wind, and we were well off shore when a southeasterly breeze sprang up and sent us under sail alone on a long tack for the beach. Consequent upon some maneuvering, a southwesterly sent us out to Bethel Shoal buoy and on the morning of the next day delivered us into the good graces of another easterly. By these tactics and a judicious use of the motor to give us an offing now and again we spent the day, but that night the wind completely forsook us and we ran all night under power, arriving off Palm Beach at eleven in the morning of Friday.

Here the opportunity presented to step ashore and stretch our legs and to replenish our store of matches and cigarettes. So in fifteen feet of water we anchored a couple of hundred yards northeast of the pier, and I swam ashore, accompanied by Al in the wherry. Arrived on the beach we found it so hot to our bare feet that we gladly accepted a loan of two bicycles offered us by some workmen (who said they would take the yawl as security for their safe return) and were soon pedaling down the deserted streets of Florida's winter capital.

Those who have seen it in February, a glare of color and the essence of the continent's fashion, will be grieved to know that in summer Palm Beach boasts but one open establishment besides the Post Office. Sun-dried lawns or boarded up hotels met our glance on every side, and Al and I thought almost that we had come to an abandoned village until in the only store we bought some soda pop and learned that Palm Beach prices prevail. Thus reassured, we mailed our postcards, bought our smoking material, and returned by wheel and rowboat to the yawl.

Paul, tending ship and swimming over the side in our absence, had decided that a protracted view of the barn-like sides of The Breakers was sight-seeing enough for him, so we weighed anchor and under sail started to annihilate the remaining sixty miles to Miami. Here we had come to that stretch of Florida's mainland along which the Gulf Stream cuts the closest, and to avoid its current we ran almost within tossing distance of the beach. Al, standing the first watch that night, saw homebodies reading in the glow of their study lamps, and vainly envied the speed of motor cars flitting along the coastal road between Hillsboro Inlet and the Beach.

But the setting moon took from him the ability to gauge our distance from the beach, and morning found us fog-bound safely off soundings. The fog, liberally diluted with pungent smoke from some distant fire in the Everglades, burned off at six o'clock, and the increased visibility revealed us bearing down on Biscayne buoy, north of the entrance to Miami. For several hours we had been running by motor over a sea so calm that our booms, suspended from idle sails, scarcely left their amidship position, but now a fair wind came into life and for the last five miles of our six-days' run we sailed with free sheets.

Entering the Government cut under power alone we chugged up the new dredged channel to an oil wharf and there acquired misinformation that initiated us into the innermost circles of Florida cruisers. Within three hundred yards of Biscayne Bay Yacht Club we grounded in four and a half feet of water. But muscles, motors, and kedge anchors were especially fashioned for cruising in Florida's inland waterways, and before long we were afloat and riding to anchor.

Miami has changed miraculously since last I saw it eight years ago, but the hospitality of my old friends, Mr. and Mrs. Hugh Matheson, remains the same—kind and open-hearted.

"Why think of going on," they urged, during an informal inspection of Hippocampus, "when there is no more wind than there has been? Come to Coconut Grove and rest awhile."

So we locked up the little yawl and for three days knew

Hippo makes herself at home alongside an S. C. boat in the Key West navy yard

the luxury of good company, real food, cool sheets, and fresh water in bathtub quantities. Then, although there was little wind, we refused heroically to impose further on our hosts, and, gladdened by a small cargo of Matheson limes, set sail for Key West.

We set sail, but hardly had we cleared the Government cut when we saw bearing down on us the knife-like prow of U. S. S. Eagle 39. She is one of those amazing wartime products of Ford car genealogy, all tin and angles, and as we had inspected her at her mooring at Jacksonville we recognized her from afar and knew that her destination was Key West. So was ours. What more fair than that we proceed together?

So, although we were out of signal distance, we tacked twice, thereby attracting the attention of her quartermaster, and with my ex-service semaphore flags I sent this unpresumptuous, modest, and diffident message:

"To Captain Strumm: Will you tow us to Key West?"

By way of answer the Eagle boat changed her course the better to intercept us, and presently we received a request to repeat our message. That done we were ordered within hail and when, our motor now propelling us, we came within speaking distance, we learned to our immeasurable sorrow that Eagle 39 was in bad straits and could not give us a tow. Captain Strumm added through his megaphone,

"We have been four days coming from Jacksonville, and there is a tug standing by to tow us in the event of another breakdown."

The mention of a tug gave us new hope, and, thanking the captain for his honest regret at his inability to tow us, we squared off in the direction of the tug and repeated our first message. This time the answer came as a wave of the hand and a long surveillance of us through a spy glass. To forestall a possible negative reply I added the pleading words,

"We are the yawl Hippocampus, bound for San Francisco, and we have been meeting head winds all the way."

There came another wave of the hand, the clang of a bell in the engine-room, a stir of activity on the tug's fantail, and—well, it seems inconceivable to this day that in three minutes we were towing securely at the end of a four-inch line.

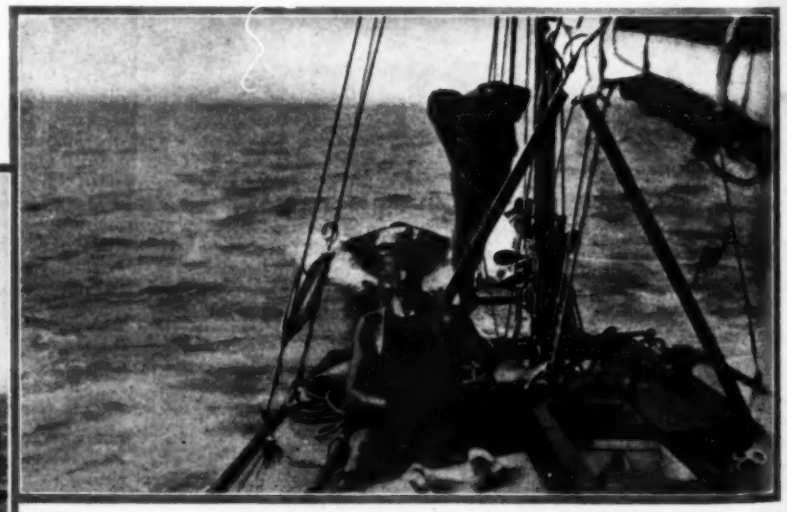
We looked at one another in amazement and someone voiced the thought of all of us.

"Did you ever see such nerve, asking a Navy tug for a tow—and getting away with it?"

None of us had, but Chambers and I thanked fortune for our training in the sub-chasers where the bold broke even with the game and only the downright brazen got what they thought was due them.

The knowledge that the acceptance of a tow-line is considered ignominious by the yachting fraternity troubled us not at all. We congratulated ourselves on our good luck, hoped fervently that the Eagle boat would not break down, and, for the first time on our cruise prayed that the wind would die down and stay dead until we had reached Key West. No prayer more certain of fulfillment could be uttered in June along the Florida coast, and all day and until four the following morning we swung at six or seven knots over a calm, limpid sea. Counting the lights as we put them behind us—Fowey Rocks, Carysfort Reef, and Alligator Reef, we at length sighted Sombrero Key and knew that in another three hours we would be past the zone of the three-knot northward current.

(*Continued on page* 58)



Enjoying life at the other end of a tow-line

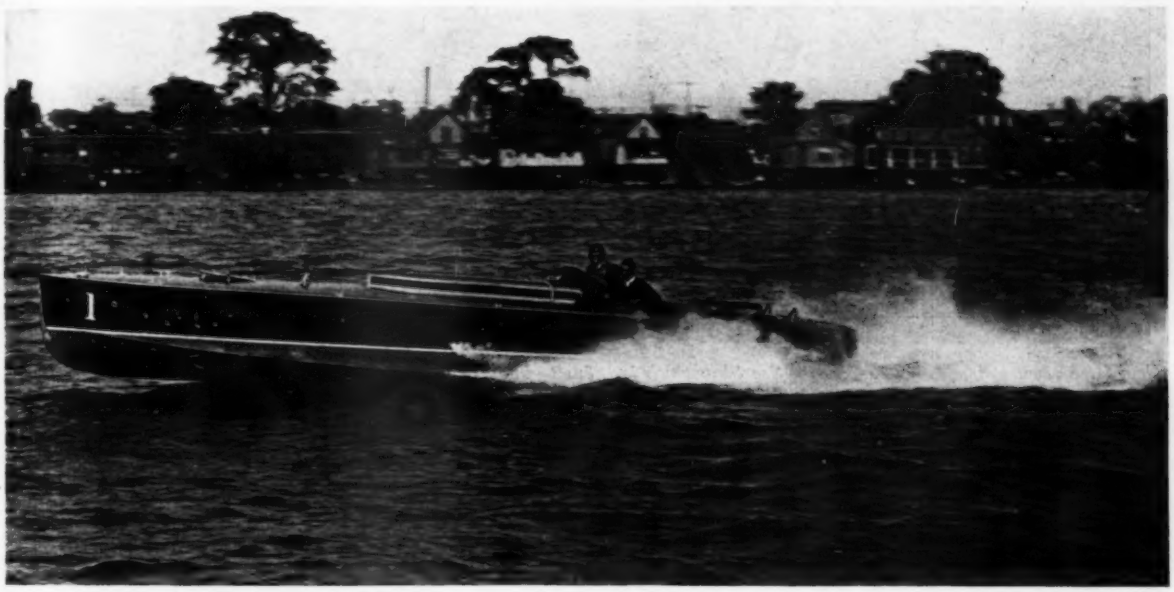
Passed en route, Hetzel shoals buoy, off Cape Canaveral

Rainbow Again Proves Her Supremacy

A Remarkable Series of Races for the Fisher-Allison Trophy Again Demonstrates that the Sensible Runabout is Worth While—Nine Entries and Two Finish the One Hundred Fifty Miles

By Charles F. Chapman

Photographs by Levick and Rosenfeld



Rainbow, the winner of the Fisher-Allison races at Buffalo. Her owner, S. B. Eagan at the wheel

RAINBOW, the best runabout in the world, has again won the Fisher-Allison Trophy. Rainbow won this race which consists of three 50-mile heats with no repairs between heats not only because she has the best hull but because she has the best and most reliable power plant and what is more the greatest racing owner for this type of boat, living. Such a combination was unbeatable. So Rainbow, winner at Detroit last September and second at Miami last winter under her former owner took second place in the first 50-mile heat at the recent Fisher-Allison Trophy races at Buffalo and then as the race progressed gradually out-ran and out-generaled all other contestants and came in an easy winner in both the second and third heats.

Just as her former owner, Commodore H. B. Greening of Hamilton, Ont., had been able to increase Rainbow's speed at Miami a couple of miles an hour over her Detroit best time, so her present owner, Commodore S. B. Eagan of Buffalo, was able to add another two miles to Rainbow's best which accomplishment together with her reliability and the racing judgment and attention to details of her owner was solely responsible for her victory.

Too much praise cannot be given to Rainbow's wonderful power plant. This is the same model GR 6-cylinder Sterling motor which performed with 100% reliability in the two previous 150-mile Fisher-Allison Trophy races. It is the same power plant which has made Rainbow a sensible, honest to goodness runabout, when she is not racing, ready to go anywhere, any time and carry a party of four or five people, comfortably, safely and with the speed of a railroad train. Runabouts of the Rainbow type with similar power plants have a wonderful future before them. It is the type of boat for which the American public has been waiting long and patiently. It has been developed and perfected solely as the result of the conditions governing the Fisher-Allison Trophy Race calling for a sensible, reliable, seaworthy and fast runabout.

Bill Meier counts the seconds and Harry Parsons calls "time"

Rainbow also showed the fastest lap and 50-mile heat of the single-engine boats.

Other than the performance of Rainbow, the result of this year's races for this blue ribbon trophy can hardly be called the success which was expected. The race drew the largest entry list of any similar race in history. Nine boats entered and a few hours before the start it appeared probable that all would start, giving every indication of the greatest race in history. However, shortly before the start things began to happen which showed how unprepared some of the boats were and how flimsy a construction had been resorted to in order to keep down the weight per horsepower and thus gain boat speed. The sacrifice in strength and reliability in every instance resulted disastrously.

First an accident befell Orlo II and she had to be counted out, then Miss Peerless developed poor turning qualities and her owner withdrew. Nick Nack, the new runabout built by Commodore Humphrey Birge, of the Buffalo Launch Club,

Orlo III a remarkably fast and successful Sea Sled which lost, due to faulty engine installation

especially to win the Fisher-Allison Trophy, only reached Buffalo the day before the race and on her try-out it was found that she had not sufficient hull strength to stand the 150-mile grind so she withdrew. This left six boats to line up for the start.

Five makes of motors were represented in the race. Three boats had Sterlings, two had Hall-Scotts, one a Murray and Tregurtha, one a Miami and one a 12 cylinder Peerless. Three boats which had raced in former races were entered. Rainbow which won last summer at Detroit but now with a new owner was ready, looking finer and more fit than ever before. Adieu, owned by Webb Jay of Chicago, the boat which won last winter at Miami but now powered with an 8 cylinder Hall-Scott motor instead of her original 6 cylinder motor of the same make, was regarded by many as a probable winner. Orlo II, owned and driven by George Leary, Jr., of New York, was the same Sea Sled which performed so creditably last winter at Florida and which after winning the second heat and establishing new records for one lap and a 50-mile heat was forced out of the final heat due to the breaking of an exhaust pipe.

Of the new boats there were six. Of these Aye Aye Sir, owned by Carl G. Fisher of Indianapolis, and designed and built by Purdy was

Father Hickman, of Sea Sled fame, and George Leary, Jr., who is making sea sleds famous

Three responsible for the race—James A. Allison, Carl G. Fisher, Commodore Humphrey Birge, and Commodore Kotcher of Detroit

a sensible type in every way. She was powered with a 450 horsepower Miami motor which ran without trouble in all the races but as the boat was so big and husky she did not have the necessary speed to be a dangerous contender at any time. Miss Sterling, owned and built by Griffith Clark of Toronto, and designed by George F. Crouch, was also the type of boat originally intended to be developed by the Fisher-Allison Deed of Gift. Her power was one six cylinder type GR Sterling motor which gave no trouble whatsoever. Miss Sterling ran a great race with the winner Rainbow and trailed her closely at all times finishing a few seconds behind her in each heat. Miss Sterling was driven by John Stroh, of Detroit, owner of Snap Shot, which took second place in the Fisher-Allison Races in that city in 1920.

Adieu, owned by Webb Jay, was fast, but hurried preparations were responsible for her failure

"Griff" Clark of Toronto, owner and builder of Miss Sterling, which ran second

NEW WORLD'S RECORDS MADE AT BUFFALO

Runabouts Powered with Marine Engine

Distance	New Records			Old Records		
	Boat	Motor	Speed	Boat	Motor	Speed
One Mile [1].....	Orlo III	2 M. & T.	57.799	Orlo II	2 Sterlings	47.0
Two Mile Lap..	Orlo III	2 M. & T.	41.6 [2]	Orlo II	2 Sterlings	40.0 [2]
50-Mile Heat...	Orlo III	2 M. & T.	39.8 [3]	Orlo II	2 Sterlings	38.2 [3]
150-Mile Race..	Rainbow	1 Sterling.	38.3 [3]	Adieu	1 Hall-Scott	37.5 [3]

[1] Average of 6 one-mile dashes with and against current.
[2] 2 miles to lap, single buoy turns.
[3] 2 miles to lap, circular course.

Arthur Diesel Griese and his committee representing an industry. Left to right—Wilbur H. Young, Mr. Griese, Ira Hand and W. C. Morehead

Nick Nack, owned by Commodore Humphrey Birge, is a 32-footer, designed and built by Hacker and powered with a 6 cylinder Hall-Scott motor. Without doubt Nick Nack would have been very fast but as usual hasty and improper preparations brought good intentions to naught.

Orlo III and Rainbow II were the real innovations of the day. Rainbow II was something absolutely new under the sun. Her owner, Commodore Harry B. Greening, has been experimenting ever since last winter's race not only on a new theory in hull design and construction but in a new form of propulsion as well.

As to who inspired the design of Rainbow II is best told by Commodore Greening, himself.

"The design of this boat is a combination of ideas of five different men, as follows:

"The longitudinal step belongs to Professor Geo. Crouch, and was first conceived by him to be applied to such boats as "Rainbow I" and the idea was to reduce the wetted surface when under way.

"The surface propeller idea

A view of Rainbow II's stern. Surface propellers are used, located amidships

Rainbow II, a remarkable boat in which there are great possibilities

is of course Hickman's and he very kindly licensed me to use it and helped us in every way by supplying propeller data, of which he has a very complete indexed reference. This, we feel particularly indebted to Hickman for, as it eliminated no end of experimental work.

"For the Tunnel Stern idea I have to thank Mr. Tripp of the Albany Boat Corporation, who, while lunching with me at the Old Colony Club, New York, last winter, very kindly invited me to experiment with this, remarking that we would no doubt find many advantages in it.

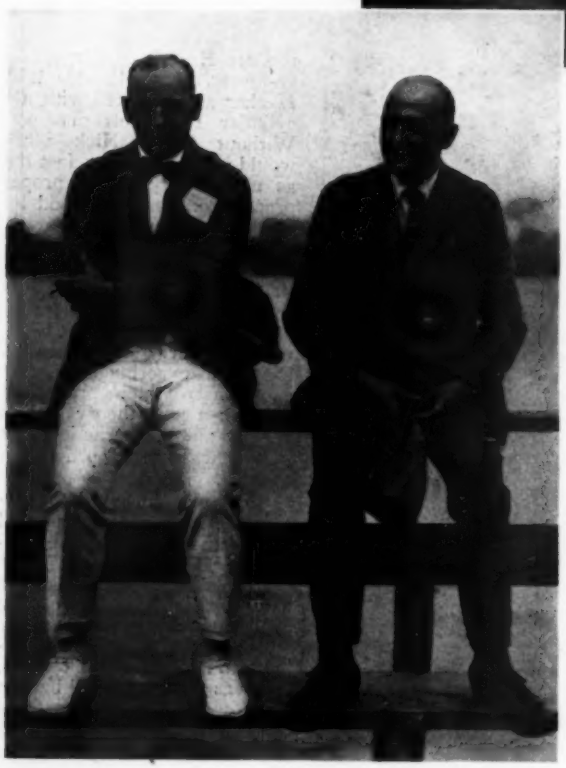
"Armed with the three ideas as described above, with permissions to use them, and recognizing considerable merit in all of them, I started to work out my new boat, and was somewhat at a loss as to which way to turn. My first opportunity to really discuss the matter with Herb Ditchhurn and concentrate on it was the first night we had to kill on the train on our way to Florida to attend the Fisher Trophy Races. Here we got together in real earnest and the present combination of the various features is the outcome, although I might state that our original idea had been to use a single surface propeller, which accounted for the locating of the propellers so far forward, as we considered this necessary with the one propeller in order to get it located near the center of the lateral resistance so as to have a boat that would keep a straight course.

"This placing of the propellers forward automatically creates a pivot or fulcrum for the rudders to make use of and in this way we hoped also to eliminate the bow rudder.

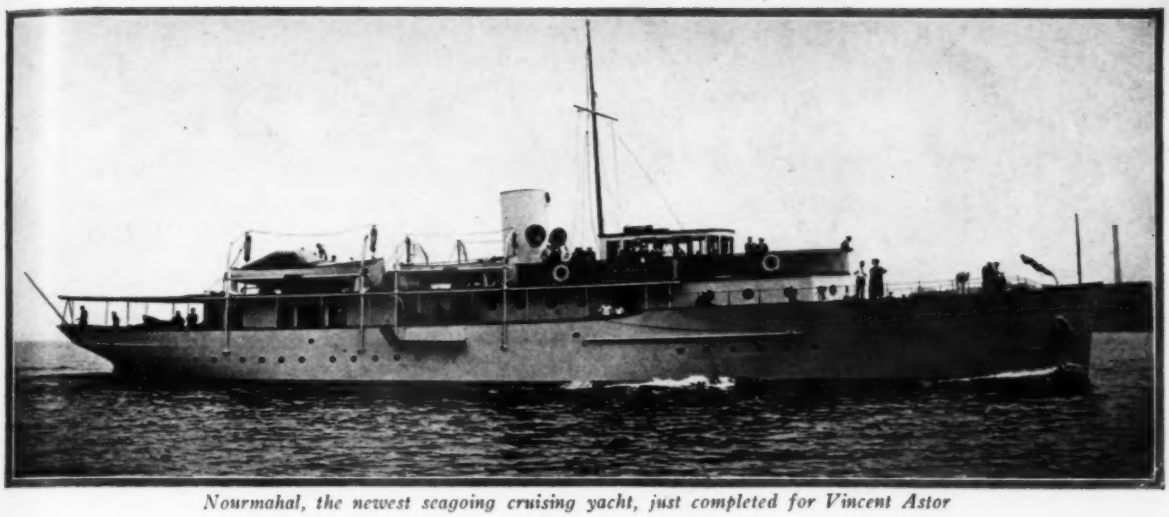
"As you have already noticed from the lines we have gotten up a type of boat which, if anything, is more seaworthy than the conventional V bottom, and in order to avoid criticism on this point we have sacrificed considerable speed by making the boat wider and deeper than really necessary. We defend Crouch's overhanging bottom idea on the point of sea-worthiness, as this form of overhanging bottom should be adopted in the Fisher Rulings. After deciding on the combination we felt there was no one as capable as Professor George Crouch to work them out, so I wrote George from Florida in February and received a very encouraging wire and on meeting him in New York on our return we found him very enthusiastic about it, so much so, that he had already worked out considerable of the details.

"From this point the entire matter of the design of the boat was left in Professor Crouch's hands and it took him the best part of four months to finally arrive at what he considered a workable combination of the several ideas

(*Continued on page* 46)



W. C. Morehead, president of the Gt. Lakes Boat Building Corp., and Ned Purdy, of the Purdy Boat Co.



Nourmahal, the newest seagoing cruising yacht, just completed for Vincent Astor

Nourmahal, the Largest Diesel Yacht

The Latest and Finest Example of the Boat Builders Craftsmanship, a Rare Combination of Strength and Beauty

AMONG the newest full-powered pleasure yachts is Nourmahal, the 160-foot Diesel-engined steel vessel just completed for Vincent Astor at the Robert Jacobs shipyard at City Island, New York. Nourmahal was designed and built under the supervision of Cox & Stevens, naval architects, who have designed many successful yachts of the high speed type as well as cruising craft of all sizes. This new boat has created considerable interest, one of the reasons for this being the fact that she is the largest full-powered Diesel-engined yacht yet built in this country.

For motive power there are two main engines located amidships. These are the Winton full Diesel type with six cylinders each. The bore is 12 15/16 inches diameter while the stroke is 18-inches. These motors were built by the Winton Engine Works, Cleveland, Ohio, and on the test block at the manufacturers works showed 350 h.p. when running at 250 revolutions per minute. These motors drive the propellers directly without the use of a reverse gear which is not necessary since the motors are directly reversible.

Small boat equipment consists of one 26-foot launch with a four cylinder 4½ in. by 6 in. 40 h.p. Scripps motor. This is an unusually fine boat with sedan cabin, the engine being installed forward of the helmsman's cockpit where it is well protected. In addition there are several other boats among which can be mentioned an 18-foot launch with a

Only on a vessel of this size is it possible to include such spacious quarters as these

The dining saloon is at the forward end of the deck house

A corner of one of the several elaborate state-rooms

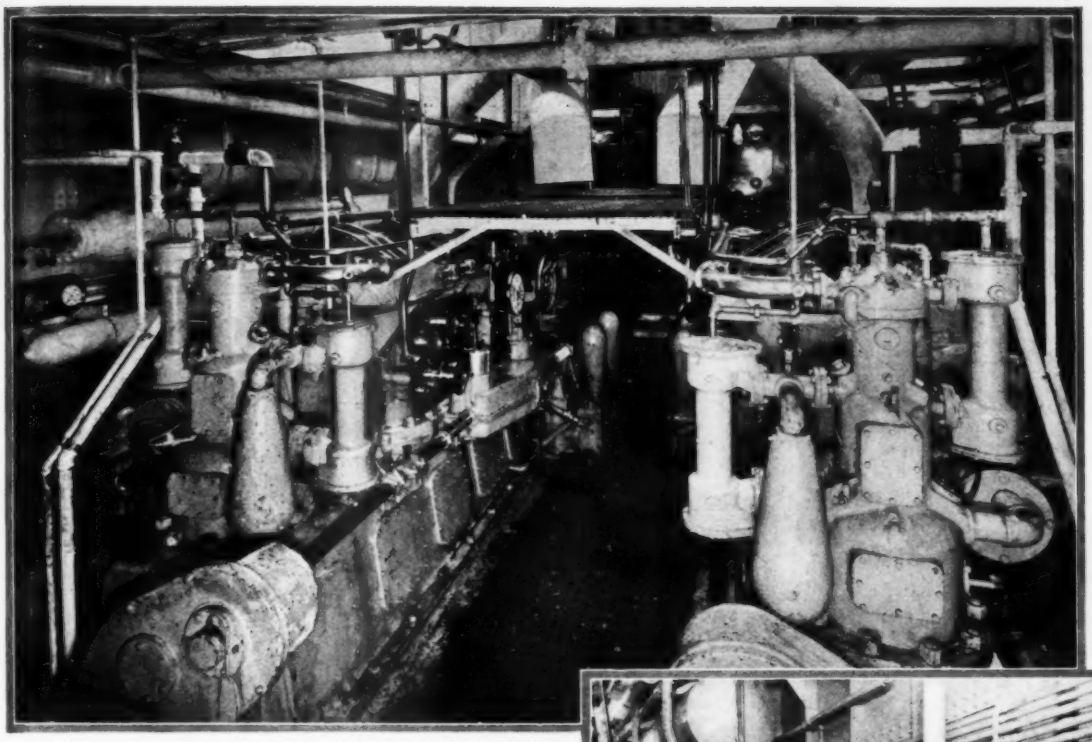
Kermath motor, two life-boats, and a 15-foot gig.

Perhaps the first feature to attract one's attention on boarding Nourmahal is the huge semi-circular lounge at the end of the aft deck and in fact this perhaps contributes as much to its comfort and livableness as any one item. This lounge, built low with box springs, is cushioned to fit the back and has a wide seat seven feet deep in the center. It was especially designed and built for Nourmahal and is covered with a heavy basket-woven fabric which repeats the blue of the awning lining and the cushions of the deck chairs.

The interior furnishings were planned by the Hampton Decorators in co-operation with Charles A. Platt, the architect, from the marine architects drawings and were put in work long before Nourmahal was launched. Each piece was especially designed and made to order by hand for Nourmahal.

The lounge is perhaps the most interesting room, its mellow toned walnut paneling, deep fawn colored rug, which was woven in one piece, and mantel of black marble forming a beautiful setting for the walnut furniture upholstered in a gay hand-blocked linen. Blue of a deep sky tone is the dominant note of the linen slip covers, draperies and lamps, while rose, yellow and green are introduced in the figures on the linen. At one end of the room the Chart of Home Waters mural decoration forms the center of interest and below this is a desk and the log of Nourmahal. At the opposite end is a real fireplace around

Nourmahal's smoking room is fitted out luxuriously

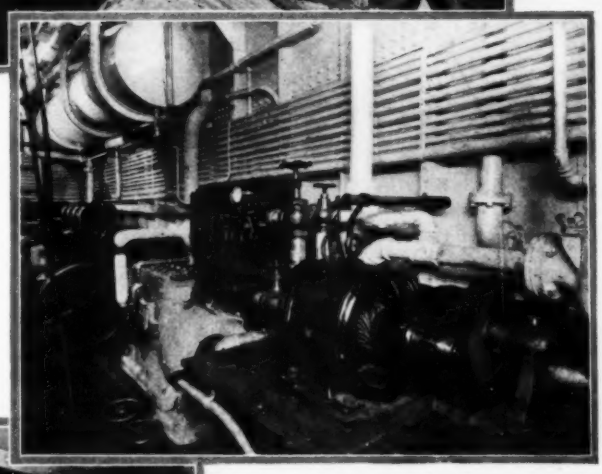


The main engine set consists of two Winton Diesel motors of 350 h. p. each

which are grouped big, comfortable English club chairs and a sofa backed by a sturdy table of walnut. Book shelves are built in at either side and an Ampico is placed in one corner.

The smoking room which also has a real fireplace of black and fawn marble with antique brass fender and fire irons is paneled and ceiled in walnut. The little tables are of hand-carved walnut, suggesting the Italian, while the English club chairs and sofa are upholstered in dull green morocco leather.

The dining room is of late Georgian decoration, its



The engine room also houses all the auxiliary machinery, pumps, generating sets and other essentials

A most wonderful galley is provided, equipped with every possible utensil

painted paneled walls and ceiling finished in egg shell white, the port-hole draperies of sea foam green linen figured in gay flowers. The beautifully modeled hand-carved furniture is reproduced and adapted from famous old models. The sideboard, with its little brass galleries, is an unusually beautiful example of cabinet making and of finely marked woods. The table, which is fastened to the floor, may be extended to seat twelve persons and is adapted from a Sheraton design, to meet the needs of a yacht.

In planning and carrying out the interiors of Mr. Astor's yacht the Hampton Decorators have achieved the elegance of a simplicity in which there is not a superfluous ornament and not an inharmonious detail. Each interior is livable, comfortable, delightfully restful and suited to its use.

Motor Boatmen's Chart No. 23—Biscayne Bay, Florida

Use in Connection with Coast & Geodetic Survey Charts Nos. 1248 & 1249

Motor boatmen's charts as published by MoToR BoatinG can be had printed on heavy cardboard 8½ x 11 inches and punched to fit a standard loose leaf binder. They contain name and location of all principal ports and harbors, distances, compass courses and sailing directions. Invaluable for use on small boats and motor yachts. The charts are 25 cents each or $1.50 for the set of twelve. Canvas bound loose leaf binder to hold the charts can be had for $1.75. The set now includes the following charts:

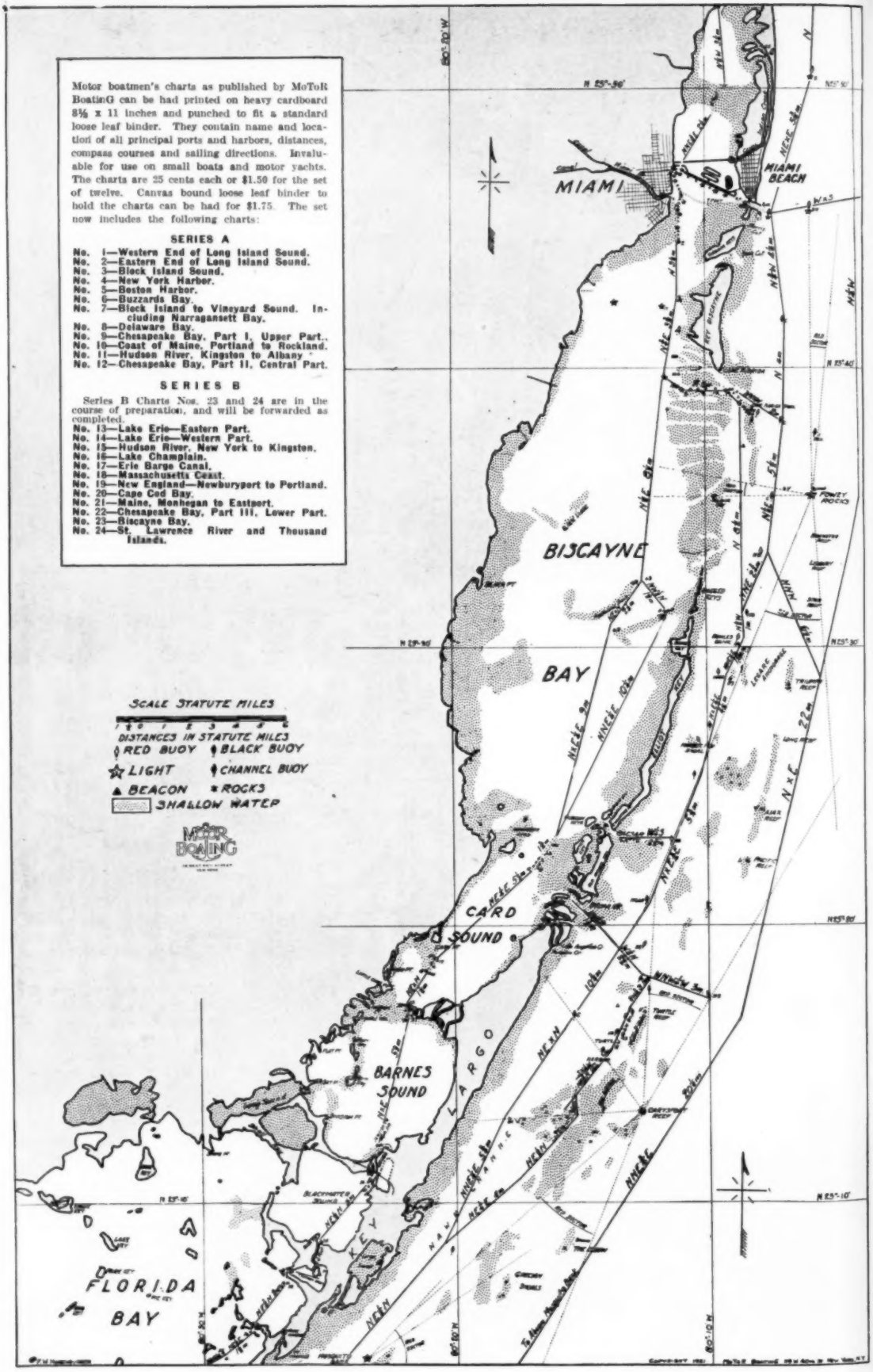
SERIES A

No. 1—Western End of Long Island Sound.
No. 2—Eastern End of Long Island Sound.
No. 3—Block Island Sound.
No. 4—New York Harbor.
No. 5—Boston Harbor.
No. 6—Buzzards Bay.
No. 7—Block Island to Vineyard Sound. Including Narragansett Bay.
No. 8—Delaware Bay.
No. 9—Chesapeake Bay, Part I, Upper Part.
No. 10—Coast of Maine, Portland to Rockland.
No. 11—Hudson River, Kingston to Albany.
No. 12—Chesapeake Bay, Part II, Central Part.

SERIES B

Series B Charts Nos. 23 and 24 are in the course of preparation, and will be forwarded as completed.

No. 13—Lake Erie—Eastern Part.
No. 14—Lake Erie—Western Part.
No. 15—Hudson River, New York to Kingston.
No. 16—Lake Champlain.
No. 17—Erie Barge Canal.
No. 18—Massachusetts Coast.
No. 19—New England—Newburyport to Portland.
No. 20—Cape Cod Bay.
No. 21—Maine, Monhegan to Eastport.
No. 22—Chesapeake Bay, Part III, Lower Part.
No. 23—Biscayne Bay.
No. 24—St. Lawrence River and Thousand Islands.



The crew, left to right, Mrs. C. F. Chapman, Commodore Wood, Mrs. Wood, Gar Jr. and C. F. Chapman

Photograph by J. B. Murdoch

Gar Jr. II Explores Uncharted Waters

The Famous Speed Cruiser Adds Another Three Thousand Miles to Her Already Enormous Mileage — Detroit to Duluth and Chicago via Lake Huron, Lake Superior and Lake Michigan

COMMODORE GAR WOOD'S speed cruiser, Gar Jr. II, has gathered new laurels for herself. This is the boat which sprang into fame a few months ago after winning every race in Florida last winter in which she was eligible to compete. She then challenged the fastest express train running between Miami and New York for a race between these two cities and came out the victor by 29 minutes after a rough and stormy passage up the coast. As will be remembered, Gar Jr.'s run was continued on to Detroit, Mich., Commodore Wood's home town, making a total distance of 2,036 miles in 80 hours' running time.

After conquering everything in sight on salt water, Gar Jr.'s bow

We were not dependent upon Broadway for our supplies — the Commodore was a great berry picker

Gar Jr. II arriving at Duluth after following the entire north shore of Lake Superior

Our first night's mooring on Lake Superior. We simply had to run the cruiser's bow ashore and step off

Fuel on the north shore was very scarce. At times it had to be brought from a great distance inshore

headed for new fields of conquest which would take her to the points farthest north as well as farthest west which it is possible to reach on the inland waters of this country navigable for a craft of her kind. This time Gar Jr. was steered to waters which took her practically out of touch with civilization for more than a week's time, into bays and natural harbors which perhaps a motor boat had never before sailed, sometimes 40 to 50 miles from land and at others running at railroad speed only a few feet from shore, keeping no further away from coast line for hours at a time, with the shore extending straight upward for a distance of 1,000 feet, sometimes more, but with always from 500 to 1,200 feet of water under her keel. When a shelter or harbor was required all that had to be done was to go a few feet further to port or starboard until one of the crew could step ashore and there make a line fast to some overhanging rock or tree. All would then be as serene aboard as though Gar Jr. were riding to an anchor in the safest harbor of our seacoast.

You who have sailed the Atlantic Coast from Miami to Key West or cruised from harbor to harbor along any section of the wonderful eastern shoreline of our country or spent your vacation cruising up and down its rivers and bays know something about the joys and possibilities of motor boating in this country, but unless you've spent as much time on the Great Lakes, and on Lake Superior in particular, you've missed a lot and do not yet know to the fullest extent the pleasures of cruising which await you. You don't have to be a Gar Wood to know these joys either. It isn't necessary to own a Gar Jr. to learn. Any boat which is seaworthy, navigated by anyone with common sense and having a fairly large fuel capacity necessary on account of scarcity, can easily make the trip.

Navigation on Lake Superior is no different than elsewhere, except perhaps it is easier in one respect due to the absence of compass variation. The wind blows on the Lake exactly as it does on the ocean or any bay. The sea is the same, it's just as choppy after a squall and the roll is just as great after a storm. The fog is there exactly the same and it's as wet and as hard to see through as off the coast of Maine. The wind blows the spray aboard with just as much force and snap when you are out of sight of land on Superior as it does when you are making a run to Bermuda. All of such natural phenomena are the same one place as another, so don't get the oft mistaken idea that the seas are longer one place than another, or that the fog is more easily penetrated by eyesight or the squalls come quicker and are more disastrous, or that because the water is 1,500 feet deep instead of only 100 that it makes navigation easier or more dangerous, for all such things are alike the world over where ships and those who love the sea exist.

But there are other particulars in which one body of water does excel another. For example, comparing the Atlantic Coast, with which the majority of those who own motor craft are more or less familiar, and the Great Lakes, whose virtues should be, but for some unknown reason are little known to motor boatmen, we find, particularly Lake Superior and Lake Michigan, to excel in the matter of good harbors and safe anchorage for motor boats; we find the

Hand-cars were also used to bring fuel to the boat. Commodore Wood will be seen acting as pusher

This is the kind of scenery one finds for hundreds of miles. The islands formed perfect protection from storms and sea

charts of the Lakes much better, more complete and more readily understood than the coast charts, the information prepared by the Government more complete in the *Lake Survey Bulletin* than in the *Coast Pilots,* more Government improvements for the good of small craft on the Lakes than those on the Coast ever dreamed of. Lighthouses and aids to navigation are as well placed on the Lakes as anywhere. Of course, the ship's fresh water supply gives one no concern on the great inland bodies of water, for over the side is the answer.

In the matter of number of motor boats which one sees on the Lakes during a day's run or even a week's cruise, there is an unexplainable absence of anythng that floats. Nature has given everything to make boating enjoyable and possible, but as yet man has not awakened to this. True, it will come in time, but as yet there is a great lack of something, somewhere. Through some portions of the Lakes one can sail for days at a time without seeing a motor boat and yet be within a few minutes' run of a safe harbor at all times.

When it comes to the question of scenery, perhaps no place in the world surpasses that along the north shore of Superior. From the Soo to Duluth, a distance of over 500 miles, the shore is bold and rocky right down to the water's edge, rising to heights as high as 1,500 feet and with depth of water as deep as 1,000 feet within hardly more than a boat's length of shore. Islands and islands everywhere, some of them rocky with little vegetation, others abounding in timber and immense pine and fir trees.

When the shore is a lee shore and the waters outside are lashed high and mighty by the winds, it is possible to make a safe and easy passage by running along behind the islands and only occasionally being obliged to be exposed to the full force of the winds and waves. In size the islands range from mere isolated rocks not much higher above the lake level than their diameter to regular honest to goodness bodies of land 25 to 50 miles in length. Some of the passages between the islands are so narrow that it is often possible to reach the overhanging trees on each side of the boat as she passes through. But always there is a great depth of water, so clear that the bottom is clearly visible when the depth drops off to 40 or 50 feet.

Of course, anchoring is out of the question. One might as well stow his mud-hook below decks and keep it there. If anything goes wrong it's a case of drift. But then as there generally is nothing to hit for scores of miles one might just as well be drifting as anchored.

Messrs. Cramp and Wood discuss the old and new forms of ships

In this cruise aboard Gar Jr. II the starting point was Algonac, the little village on the St. Claire River, some 35 miles north of Detroit. Algonac is the home of a number of Detroit's prominent boatmen, including Gar Wood and Commodore Alex McLeod. It is also the home of Chris Smith and his famous family of sons, Jay, Bernard, Owen and Ham, all boatmen as good as their father. It is at Algonac that all the world champion hydroplanes have been built for nearly a generation. All the Miss Detroits, Miss Chicago, Miss Toronto, Miss America, and just completed is Miss America II, which will probably be matched early in September with Maple Leaf VII, the English boat with 1,800 horsepower which is on her way across the Atlantic as this is written. Algonac also is the place where Gar Jr. II was built and where Gar Jr. III, Commodore Wood's new cruiser, will

(*Continued on page* 20)

At times the seas on Lake Superior resemble the Gulf Stream. With Commodore Wood are Mr. and Mrs. Gaylord of Duluth, who made the trip aboard Gar Jr. II from St. Ignace to Duluth

Sea Horse Wins Express Cruiser Race

New Craft Owned by James A. Allison of Indianapolis is Victorious at Buffalo

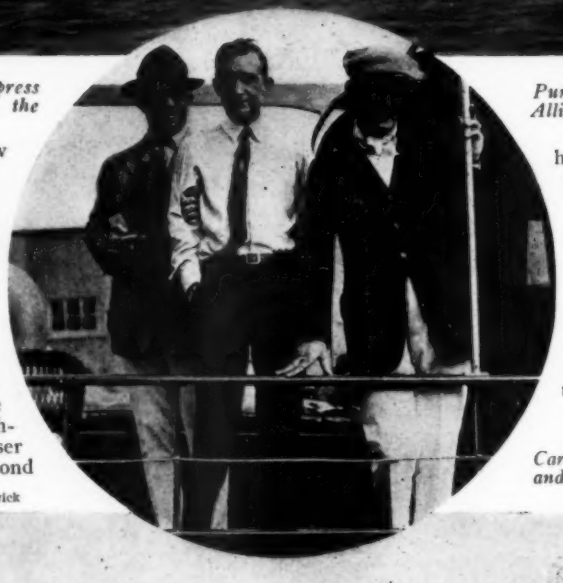
Sea Horse, the new 80-foot express cruiser designed and built by the Purdy Boat Company, for James A. Allison.

SEA HORSE, the new cruiser owned by James A. Allison of Indianapolis, proved herself to be the winner of the express cruiser races at the recent regatta at Buffalo.

The races consisted of 3 heats of about 40 miles each on Lake Erie with the start and finish at the Buffalo Launch Club on the Niagara River. Sea Horse won the first heat, Commodore Humphrey Birge's Great Lakes cruiser Miss Liberty II took the second heat and Sea Horse finished first in the final race.

Sea Horse is an excellent type of cruiser and will be used by her owner at Miami next winter. She is slightly more than 80 feet in length and is powered with two 12 cylinder Miami motors developing about 500 horsepower each. Her speed is in excess of 20 miles per hour.

(*Continued on page* 88)



Carl G. Fisher, Thomas Shipp and James A. Allison

Photographs by M. Rosenfeld and E. Levick

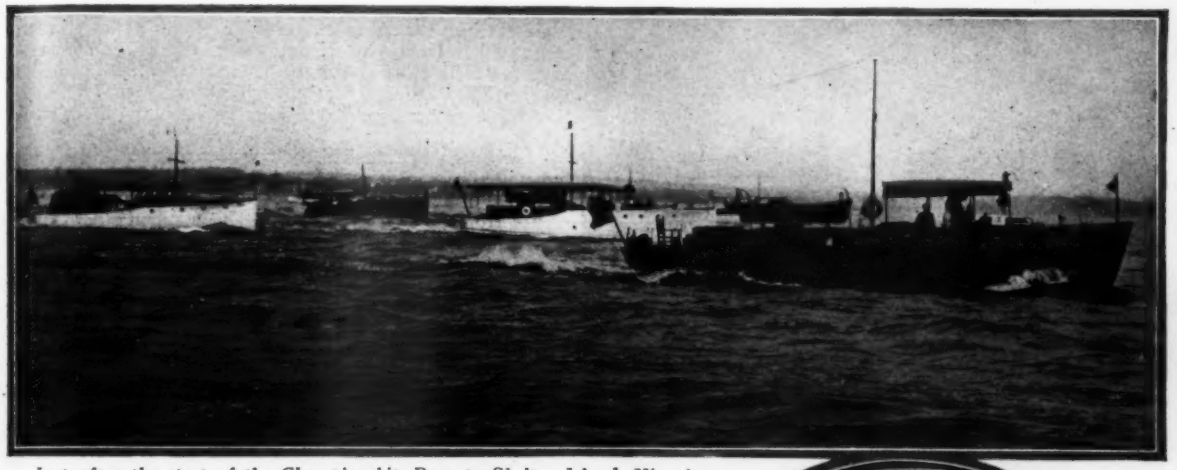
Aye Aye Sir, owned by Carl G. Fisher. This boat is powered with a 12 cylinder Miami motor. In the Fisher-Allison Trophy Race the engine compartment remained sealed for the three days. The seals were not broken at the finish and Aye Aye Sir made a run from Buffalo to Detroit which she completed with the seals still intact

Turtle Wins Cruiser Championship

Fourteen Cruisers Compete for the Challenge Trophy of The American Power-Boat Association

By F. W. Horenburger
Surveyor American Power-Boat Association

Photographs by M. Rosenfeld



Just after the start of the Championship Race to Shelter Island. Viva in the foreground, followed by Mariline, Diana and Senator Bill

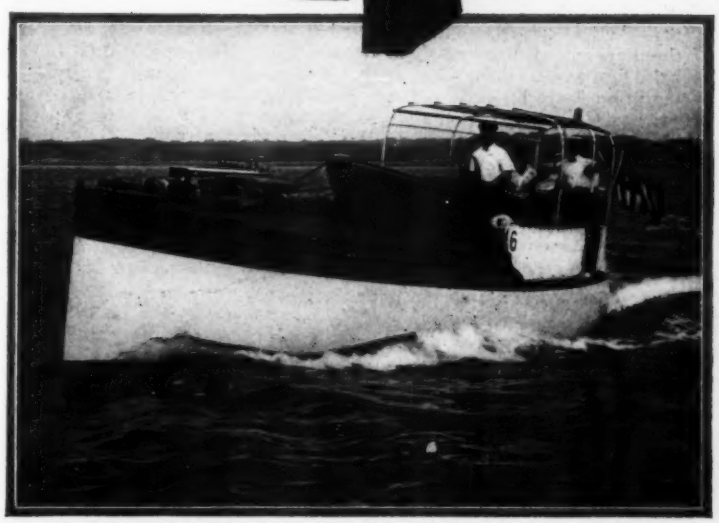
THE Handicap Cruiser championship trophy presented by the New York Athletic Club to the American Power Boat Association for perpetual competition will stay in New York for another year. Philadelphia and neighboring waters represented by four boats failed to muster sufficient strength to carry this handsome trophy home with them. Contrary to the usual conditions this race was scheduled to start at nine o'clock in the morning. This enabled all competing boats to finish the 80 nautical mile run before dark and largely eliminated the navigation hazard as a factor in the race. It will be remembered that the Block Island Race started about noon and the biggest half of the race was run in darkness, which, combined with an unusually dense fog on the day of the race made it a test of navigational skill rather than a test of endurance and speed.

The unfortunate measurer, if you lose blame him, if you win, blame him anyway

One of the provisions of the race conditions was the method of determining the revolution rate of the motor to be applied to the measurement formulae for handicapping. Heretofore the method generally used was for the owner to declare in writing that his motor revolutions were so much. The race committee had no choice but to accept this statement and the boat was rated accordingly. After numerous conferences the rules were modified at the last annual meeting of the American Power Boat Association to permit this better method to be used at the option of the race committee. The rule in effect is this: Each competing boat names an observer to take the actual revolutions of the motor during the race. These observers are then so interchanged by lot that no observer travels on the boat which names him. It is the duty of the observer to actually time the motor revolution rate at stated intervals, three or four times per hour, throughout the period of the race. These figures are later used by the committee in computing the rating and time allowance.

This particular race can be said to be the first real trial of this method. The results tabulated later show how closely together the boats finished on corrected time and

(*Continued on page* 13)



Turtle, the new cruiser champion, with decks cleared for action

Chicago's Big Race Meet

Three Days of Events Which Attracted All Classes of Racing Craft

By Verra Thomas Griffith

Photographs by E. Levick

Gar Wood was there, of course, and carried away a majority of the prizes, one of which was the Sinclair Trophy for the Great Lakes Championship

BOOM! A puff of white smoke and the echoing report of the starter's cannon! The roar of exhausts and the flash of sun on spray!

"They're off," and the crowd of spectators surges forward, while eager eyes seek the sturdy little speedsters leaping away into the first stretch of the course.

It is the start of the first of the four days' racing events—August 4-5-6-7—which formed a notable feature of the Pageant of Progress held on Chicago's Municipal Pier the first two weeks of the month. The results of these events proved conclusively, among other things, that Miss America, beyond doubt, is the world champion speed boat, with Miss Chicago a not too far behind second; that Chicago Harbor water, when ruffled even by a light breeze, is not a kindly host to visiting boats of the smaller type, accustomed to river courses; and that Commodore Sheldon Clark of the Chicago Yacht Club, chairman of the races, and his assistants, scored a big success with their water program.

The boats that streaked their way around the two and a half mile course laid out inside the breakwater on the north side of the municipal pier included a score of racing hydroplanes from nine cities: Chicago, Detroit, Buffalo, Milwaukee, Wis., Muscatine, Ia., Quincy, Maywood, Pekin and Peoria, Ill. "And the last shall be first," for the last named —Peoria—provided half of the contenders, which under the point system, carried home the bacon in the shape of two-thirds of the prize money. All except six entries had contended in the races in Peoria, July 2-3-5, and several scores of those days were evened or counterbalanced. As at Peoria the class system of racing was followed and the winners in the various classes were: Class 151, Miss Margaret, Pekin (L. E. Selby); Class 320, Ethel IX, Muscatine (C. P. Hanley); Class 478, Miss Margaret, Pekin (L. E. Selby); Class 705, B. & B., Peoria (Bartholomew and Bryant); Class 1300, Arab IV, Buffalo (R. H. Sidway); Class 2200, Miss Chicago (Chicago syndicate); Free-for-all, Miss Chicago (Chicago syndicate); Great Lakes Championship Miss America, Detroit (Gar Wood). All of whom won some of the many prizes.

Start of the 1300 cubic inch class, which was won by Arab IV

By winning the Great Lakes Championship Miss America became holder of the Harry Sinclair Trophy which is to be raced for annually at Chicago and will become the property of the one winning it three times. Commodore Sheldon Clark presented the trophy to Commodore Gar Wood, of the De-

Paul Strasburg's Baby Sure Cure, which was very fast but whose Liberty motor would not stand the gaff

J. W. Sackrider of Racine, assisted by "Dinty" Moore of Buffalo and F. G. Ericson of Toronto acted as starters

troit Yacht Club, owner and driver of Miss America. The Edgewater Beach Hotel Trophy was awarded to Miss Chicago as the winner of the Free for All. This trophy becomes the property of the one winning it. Miss Chicago was of course the favorite of the crowds and was greeted with cheers whenever she appeared. Her appearance in the 2200 Class race Thursday was her first race on home waters. Her maiden race was on the Peoria course during the July 4th regatta.

With all due respect to Chicago and Lake Michigan, a course on Lake waters, even though inside the breakwater is not a very favorable place for river race boats. Every day a battle royal was staged between the combined forces of wind and waves and the valiant little speedsters. The list of maimed and wounded grew daily, and even at the end of the first day's racing the long store room on the north side of the pier, where the boats were housed resembled a boat hospital, where skillful engine doctors and hull surgeons worked feverishly long nights through that their patients might be out again the next day. "Sink a boat a day" seems to have been adopted as a slogan. Thursday, Rosita, owned and driven by E. B. Blakely of Milwaukee, sank suddenly just at the close of the fifth race in which she came in second. Weakened by buffeting of the seas a seam opened and the boat sank within a few feet of the pier. Divers succeeded in getting a line about her and she was raised within a short time. Friday, another Milwaukee entrant, Peggy, owned by Fred Schramm but driven at the time by Dr. A. C. Strong of Evanston, dropped out of the second race in a spectacular fashion, filling and sinking just as she was rounding the last turn. Efforts at locating her proved futile for several days. Then Saturday Walter B. Wilde's boat Meteor III, a Peoria entrant and winner of the two previous heats of the 705 Class, went down, as, well in the lead, she started the last lap of the race. The Meteor was raised the following Monday, but a chain slipped and she sank again to the bottom necessitating a second raising. Drivers and mechanics of all three boats escaped with no worse than a wetting. Saturday, after three races, the battered boats surrendered to the enemy and retired to docks and barges to check up losses and injuries. The remaining races were cancelled as were the speed trials set for Sunday. Thrills for the throngs mean bills for the boatmen and not a craft save perhaps Miss America emerged from the contest without need

The little fellows racing in the 705 cubic inch class

Ned Blakely, owner of Rosita, taking his first meal in three days. His boat sank on the first day, but he raised her and soon had her running again

of more or less extensive repairs.

The crowds that throng about a motor boat race course, like all Gaul, are divided into three parts —the Winners and Wailers, the Workers, and the Watchers. And the greatest of these—well, it depends upon the viewpoint. Anyway the lines of division are elastic for certainly the Winners are also Workers and many of the supposed-to-be Workers are merely Watchers. All three classes were present in numbers at the Chicago event.

With the Winners come not only the real, sure 'nuff winning contestants, but the was-to-have-been Winners, the present Wailers or Losers. The Winners and Wailers in Chicago included such well known racing figures as Gar Wood and his brother George, and Paul Strasburg of Detroit; Ralph Sidway of Buffalo; Bernard and Jay Smith of Algonac, Mich.; Dr. A. C. Strong of Evanston; C. P. Hanley of Muscatine; E. B. Blakely and Fred Schramm of Milwaukee; Walter B. Wilde, Dr. W. W. Cutter, N. J. Kenny, John Bartholomew, L. F. Bryant, Finley Bailey, L. A. Whipple, Al Boyce, M. R. Ellis, Frank Weber and Charles Barrick of Peoria; and L. E. Selby, Walter Conover and Phil Steinmetz of Pekin.

Gar Wood brought a party to Chicago on his famous express cruiser, Gar Jr., which was one of the chief centers of attraction during the regatta. A strange twist of Fortune placed two sets of brothers racing against each other as Gar Wood and Jay Smith piloted Miss America and George Wood, with Bernard Smith as mechanic, drove Miss Chicago. So the Lake Championship race was entirely a Wood-Smith affair. Paul Strasburg had counted heavily upon his Baby Sure Cure beating Miss Chicago and was deeply disappointed when his boat, which is a Hacker model powered the same as her Chicago rival, developed gear trouble after leading the field in the Thursday 2200, and came in second then and third Friday, and did not even enter the Saturday race.

Commodore Sheldon Clark of the Chicago Yacht Club, who is responsible for the success of the races, and Jim Pugh, formerly owner of Disturber IV, the first boat to make a mile a minute

Black bad luck followed the Milwaukee men, Blakely and Schramm, sending both of their boats, Rosita, (which by the way is the hull of Mr. Quincy raced in Peoria the Fourth with a different engine), and Peggy to the bottom. Blakely, with the pluck and persistence which has pulled him out of several recent mishaps, worked with a force of men almost all of Thursday night and Friday putting a new aluminum bottom on his boat which he ran again in Saturday's events giving Miss Chicago a good run in the 2200. The death of his father called Mr. Schramm home the second day of the races, and the Peggy was driven on the two following days by Dr. Strong, that indomitable enthusiast and owner of the former string of P. D. Q's. of Mississippi Valley fame. When he was brought to shore after being dumped into the lake at the sinking of the Peggy Friday, Dr. Strong lived up to his name and jumped immediately into Miss Peoria and entered the next race. Dr. Strong was the "drivingest" man at the regatta as he handled the wheel of Miss Peoria, owned by Commodore P. H. Daniels, and entered in three events as well as driving the Peggy on her ill-fated trip. Dr. W. W. Cutter, an owner of the Famuss and driver for the first day, left that evening on a Western trip. His craft, which had been disabled during the race, having to be towed in, was not placed in the water again.

Ralph Sidway, owner of Arab IV, the boat with an exhaust that made everyone sit up and take notice when she roared away from the pier, drove two days then yielded his place to

(*Continued on page* 113)

Arab IV, owned by Ralph Sidway, Commodore of the Buffalo Launch Club. Note how Arab is entirely clear of the water

Some of the officials—Top row, left to right—Messrs. Sackrider, Ware, Schaeffer, Clark, Chapman, Parsons, Colson. Sitting—Messrs. Barthel, Nutting, White, Ericson and Meier

How Many of These Questions Can You Answer

If You Are Enrolled In MoToR BoatinG's Correspondence Course You Should Be Able To Answer Them All—If You Cannot Answer Most of Them Be Sure To Enroll Now and Learn To Get More Enjoyment Out of Motor Boating

Refer to Fig. 148, Page 60, July MoToR BoatinG, in Answering These Questions

Questions for Correspondence Course—Lessons No. 5 and 6

Published in July and August MoToR BoatinG

1. How should the compass be placed on a boat in reference to the keel line?
2. How do you determine whether the compass on a boat is correctly placed?
3. Does the North Pole of the compass point towards magnetic north or geographic north?
4. What liquid is used in the compass?
5. What is the object of the liquid used in the compass?
6. Into how many points is the compass card divided?
7. Into how many degrees is the compass card divided?
8. How many degrees in one point?
9. Name the cardinal points.
10. Name the intercardinal points.
11. Name the quarter points which have two names.
12. Give the two methods of naming by degrees the following points:
    NE.
13. SE.
14. SW.
15. W.
16. NW.
17. W x S ¾ S.
18. WSW ¼ W.
19. What would be the name of the point equivalent to 42° 11′ 15″?
20. What would be the name of the point equivalent to N 56° 15′ E?
21. What would be the name of the point equivalent to 92° 48′ 45″?
22. What would be the name of the point equivalent to S 87° 11′ 15″ E?
23. What would be the name of the point equivalent to 146° 15′?
24. What would be the name of the point equivalent to S 33° 45″ E?
25. What would be the name of the point equivalent to 303° 45″?
26. What would be the name of the point equivalent to N 56° 15″ W?
27. Name all the four point courses.
28. Name the reverse course of SW x W ¼ W.
29. Name the reverse course of 315°.
30. Name the reverse course of SW x S ¼ S.
31. Name the reverse course of SSW ¾ W.
32. What is variation?
33. What is deviation?
34. How do you determine the amount of variation for a particular locality?
35. Describe briefly one method of determining the deviation of a compass.
36. What is local attraction?
37. How would you determine the local attraction for any particular locality?
38. What is a true course?
39. What is a magnetic course?
40. What is a compass course?
41. Which kind of course (true, magnetic or compass) do you prefer to work with on a motor boat when sailing short distances?
42. What is meant by easterly variation?
43. What is meant by westerly variation?
44. What is meant by easterly deviation?
45. What is meant by westerly deviation?
46. If the variation at Portland, Me., is 15° westerly, is it necessarily the same at New York City?
47. If the deviation on a particular boat is one point westerly when sailing NE, will it likely be the same when headng SE?
48. If you have a westerly deviation, do you steer to the right or left of the magnetic course by your compass?
49. If you have an easterly deviation, is the correct magnetic course to the right or left of the course indicated by your compass?
50. When sailing in localities where the variation is westerly with zero deviation, do you steer to the right or left of the true course?
51. Will a true course be to the right or left of the compass course when sailing in localities with easterly variation and zero deviation?
52. What is the net error which must be accounted for to convert a true course to a compass course with two points westerly variation and one point easterly deviation?
53. What is the net error which must be accounted for to convert a true course to a compass course with two points westerly variation and ½ point westerly deviation?
54. What is the net error which must be accounted for to convert a magnetic course to a compass course with two points westerly variation and one point easterly deviation?
55. What is the net error which must be accounted for to convert a magnetic course to a compass course with two points westerly variation and ½ point westerly deviation?
56. What is the net error which must be accounted for to convert a magnetic course to a true course with two points westerly variation and one point easterly deviation?
57. What is the net error which must be accounted for to convert a magnetic course to a true course with two points westerly variation and ½ point westerly deviation?
58. In which direction should the error mentioned in question No. 52 be applied?
59. In which direction should the error mentioned in question No. 53 be applied?

(Continued on page 122)

ENROLLMENT in MoToR BoatinG's Correspondence Course in Seamanship, Piloting and Small Boat Handling is still open to all those who wish to enroll.

Briefly this course is intended to instruct the motor boatman in the fundamentals of boat handling and watermanship. It is intended to be practical in every sense and not to cover theoretical situations or to cover situations with which the motor boatman is not constantly coming in contact with in the actual handling of his own boat.

In each issue of MoToR BoatinG beginning with the last February number there has been or will be an article covering some branch of the subject. Each of these articles will form a lesson in the Correspondence Course and in the issue following the issue in which the particular lesson is printed there will be published a number of questions relating to the subject covered in the lesson.

Those enrolled in the course submit their answers to these questions at any time convenient to them. The answers are submitted by us to the examiners once a month and the names of those who successfully pass the questions by at least 80% are published in a subsequent issue of MoToR BoatinG.

After the publication of the last article or lesson, those who have submitted answers to each lesson and have been successfully passed by the examiners, will be entitled to a MoToR BoatinG's Pilot Certificate suitable for framing, signed by the examiners and the Editor of MoToR BoatinG, certifying that the one in whose name the Pilot Certificate is issued, has successfully passed the requirements.

All that is necessary for you to enroll is to send your name at once to the Editor of MoToR BoatinG. There is no charge now or later. For those who have not yet enrolled and desire to do so, we have a limited number of back issues of MoToR BoatinG, containing previous lessons.

Mysteries of the Chart Explained

Reading and Interpreting the Chart, How Charts Are Made and What to Look for on Them—Meaning of the Symbols and Marks

MoToR BoatinG's Correspondence Course Lesson No. 8

By F. W. Horenburger

CHARTS, the subject of the present lesson in MoToR BoatinG's Correspondence Course are among the most essential items of equipment carried on boats. The navigator is dependent at all times upon the correctness and accuracy of the information shown on the charts and it is the duty of various government agencies to see that the information supplied is correct at all times. A chart is a miniature representation on a plane surface of certain portions of the earth's surface plotted according to the definite systems of projection. They generally include an outline of adjacent lands and such artificial features that are useful as aids to navigation. They show the depths of water, the location of obstructions, dangerous areas, the parallels of latitude and longitude and other information according to the special use for which the chart is intended.

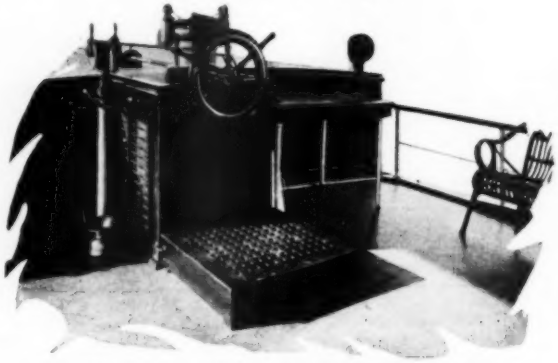


Fig. 167—*An essential part of every well equipped boat is a chart table. In the illustration this is very well located at the helmsman's position so that the chart is always available for quick reference*

There are several ways in which charts are constructed. The method commonly used for navigation charts is Mercator's projection. This system assumes that the earth is a cylinder and in accordance with this assumption the meridians of longitude which in a sphere converge at the poles are opened out and become straight lines. This necessitates a stretching out in the width of everything in the higher latitudes. In order to preserve the geographical relation the lengths are stretched proportionately, with the result that everything in the high latitudes is on a larger scale as compared with places in lower latitudes. An island, for example, in the neighborhood of the equator would appear much smaller than an island of the identical size in the neighborhood of the poles, both being plotted to the same scale. The cylinder on which the

(*Continued on page* 82)

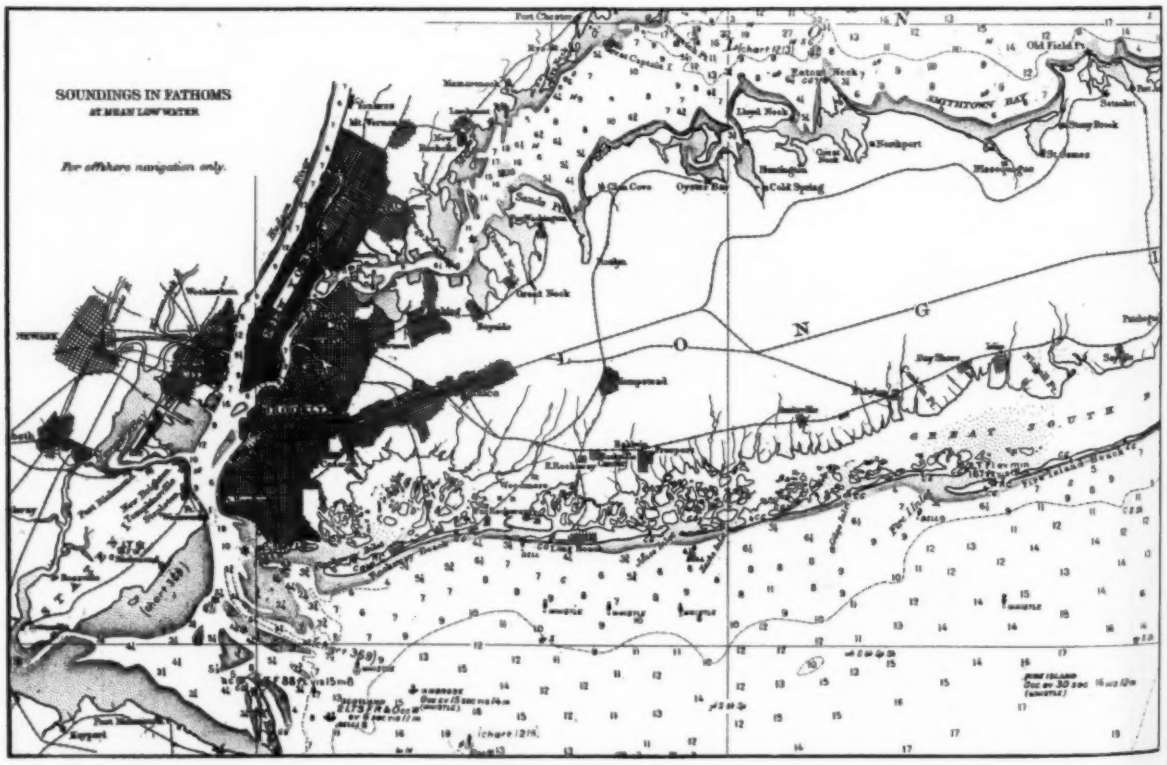


Fig. 168—*Small portion of the general coastwise chart number 1108, Approaches to New York. This in the original covers the entire zone lying between Nantucket shoals on the east and Five Fathom Bank light vessel on the south. It is on an exceedingly small scale and only intended to be used for offshore navigation. Such general features as the principal sea coast lights and light vessels are prominently shown as well as a general outline of the land and location of cities. The principal deepwater buoys which would be observed by a large vessel in approaching a harbor are also indicated. For comparative purposes Figs. 168 and 170 are reproductions of the same locality as shown on larger scale charts reduced in the same proportion. References to these charts numbers 1215 and 369 are printed in red on the originals. Soundings are given in fathoms and on the original, curves of depths running through 10, 20, 40, 50, 100 and 1,000 fathoms are indicated. In the drawing the 10 fathom curve appears and a portion of the 20 fathom line is just visible in the corner*

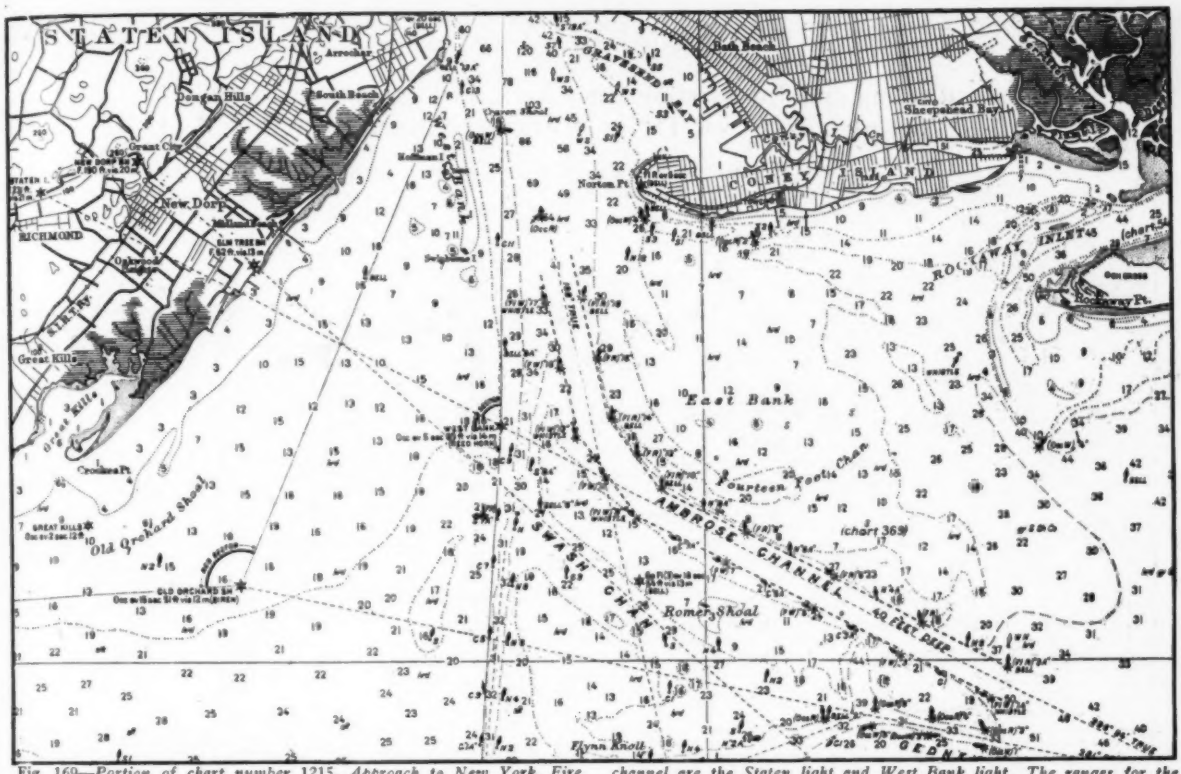


Fig. 169—*Portion of chart number 1215, Approach to New York, Fire Island Inlet to Sea Girt Light. Original on a scale of 1 to 80,000. The meaning of this term when it is used on a chart is that the actual distances as represented on the paper are one-eighty-thousandth of the actual distances on the earth's surface. The size of this chart is such that all buoys and other aids to navigation can be readily shown. Note the many lighted buoys along the Ambrose Channel. The steering ranges for the channel are the Staten light and West Bank light. The ranges for the Swash channel are similarly the New Dorp and Elm Tree beacons. The visibility of these lights is plainly indicated and these ranges are used continuously. The depth of water can be given in greater detail, the soundings being given in fathoms. The contour curves of the depths of water are plainly shown and have the meanings as indicated on Fig. 179. The land topography, as streets, roads, etc., is clearly indicated*

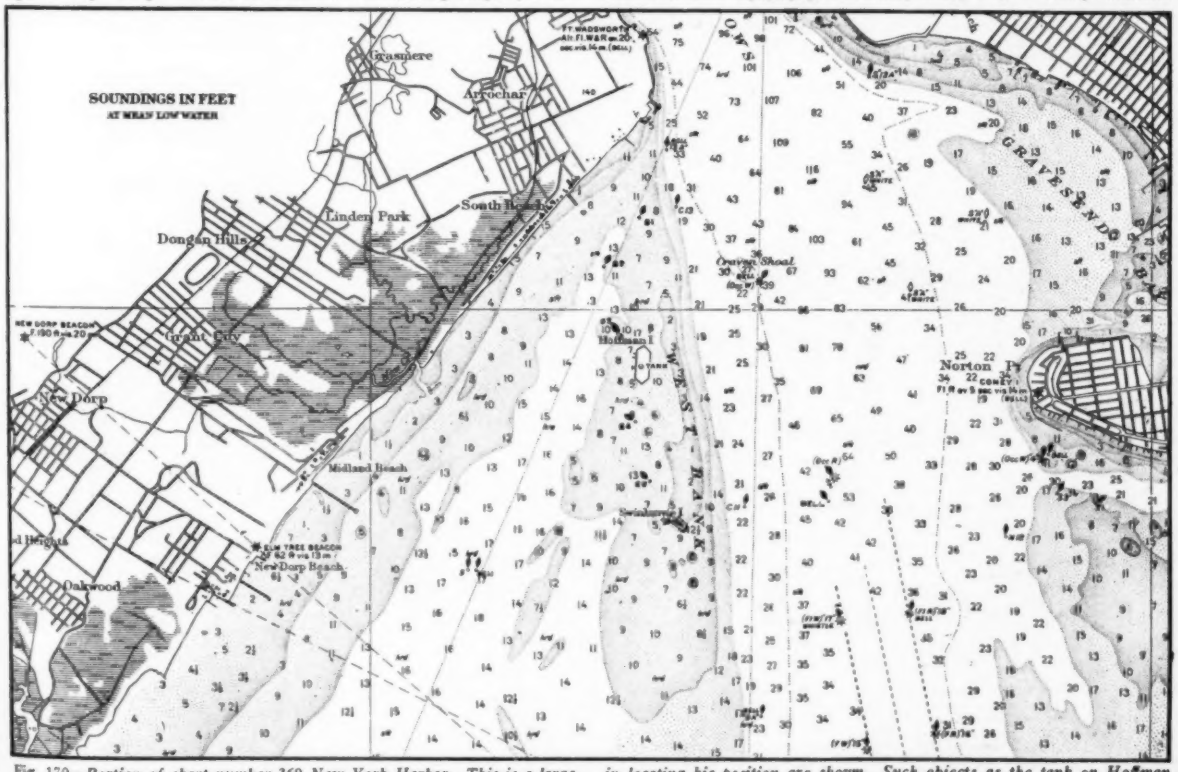


Fig. 170—*Portion of chart number 369 New York Harbor. This is a large scale detail chart on a scale of 1 to 40,000 or twice as large as the one shown in Fig. 169. On this one the soundings are indicated in feet at mean low water. The relative size of the charts can be seen since the reduction has been made the same in each case. Much greater detail is possible as will be noted by the shoal water indications in the tinted zones, the wharfs, buildings, streets and other features being more plainly indicated. Conspicuous objects which will aid the navigator in locating his position are shown. Such objects as the tank on Hoffman Island and on the original, towers and prominent objects appear in great numbers. The ranges referred to under Fig. 169 are shown on this chart also but owing to its larger size it was not possible to get them all in the small space on our reproduction. The vertical and horizontal lines which appear on the charts are the parallels of longitude and of latitude. The figures giving this information appear at the edges of the original chart and enable one to quickly determine any point*

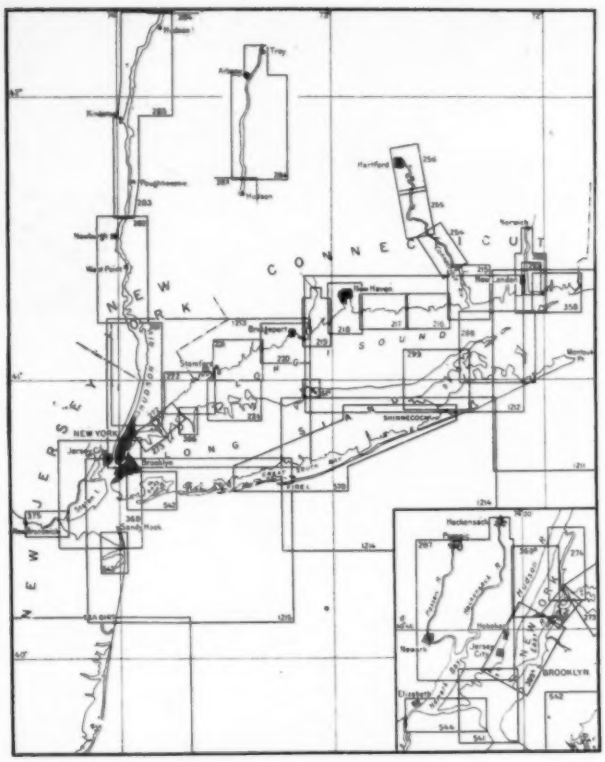


Fig. 171—*A reproduction of a typical page taken from the catalogue of charts, coast pilots, and tide tables as published by the United States Coast and Geodetic Survey. It will be noted that the numerous rectangles indicated cover the territory embraced in the various charts published. The relative size of the charts discussed under Figures 169 and 170 can be clearly distinguished. The general coastwise charts for offshore navigation are not shown on this index. On the adjacent page of the catalogue is noted the number, title, state, scale, size in inches and the price of each of these various charts. The chart user can quickly determine which charts are necessary to him and also their cost by referring to the catalogue*

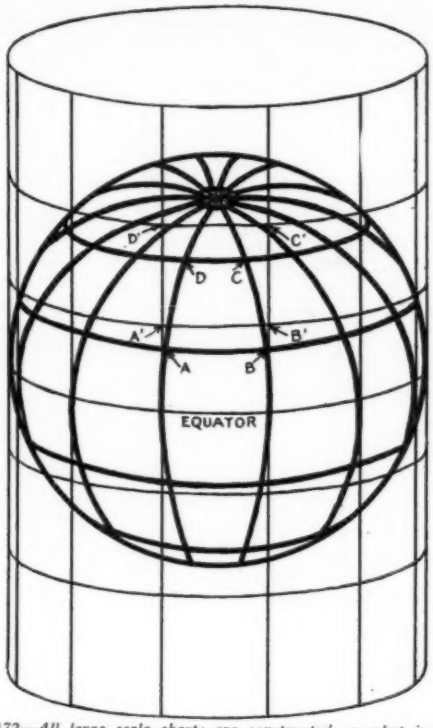


Fig. 172—*All large scale charts are constructed on what is known as Mercator's projection. This means roughly that the chart is constructed on the theory that the earth is a cylinder. The meridians of longitude which converge at the poles are opened out and become straight lines. This necessitates a stretching out in width of everything in the higher latitudes. To preserve correct proportions everything in the higher latitudes is on a larger scale than at the equator. The particular advantage of this method is that the track of a vessel can be represented by a straight line instead of a curve as it would be in the case of a sphere. In our diagram the points marked A, B, C, and D on the earth's surface become the points A', B', C', and D' when projected on to the chart according to this method of construction*

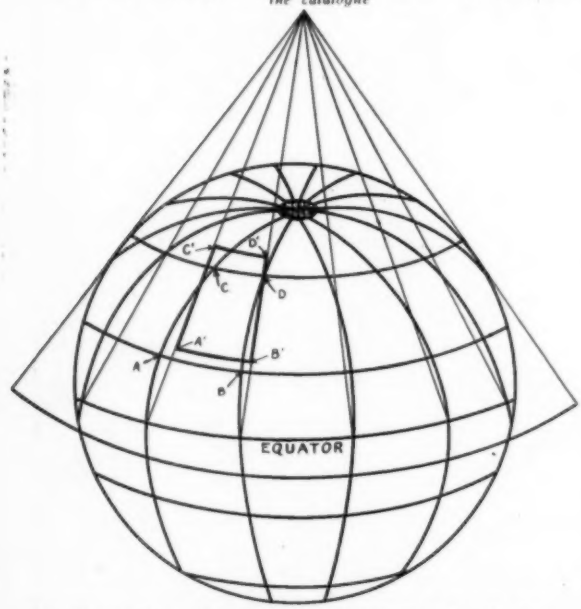


Fig. 173—*Another method of plotting charts is the polyconic shown in this sketch. This system while not used for navigation particularly is adapted to the plotting of surveys. It is based on the development of the earth's surface on a series of cones, a different one being taken for each parallel of latitude. The vertex being in a point where a tangent to the earth at that latitude intersects the earth's axis. The distortion is less in this method than in the others and a straight line on this type of chart approaches very closely a great circle. It is only on charts of very large extent that the curvature becomes apparent. The parallels of latitude are curves, this being apparent to the eye upon all except the largest scale of charts*

Fig. 174—*This chart is a small portion of detail chart number 543. It represents a section of the Shrewsbury River and is designed especially for local navigation. The scale of this is 1 to 20,000. Depths of water are give to one-half of a foot. Such features as dikes, submerged rip rap, breakwaters, post lanterns, marsh land, dredged channels, bridges, coast guard stations, etc., are all clearly indicated*

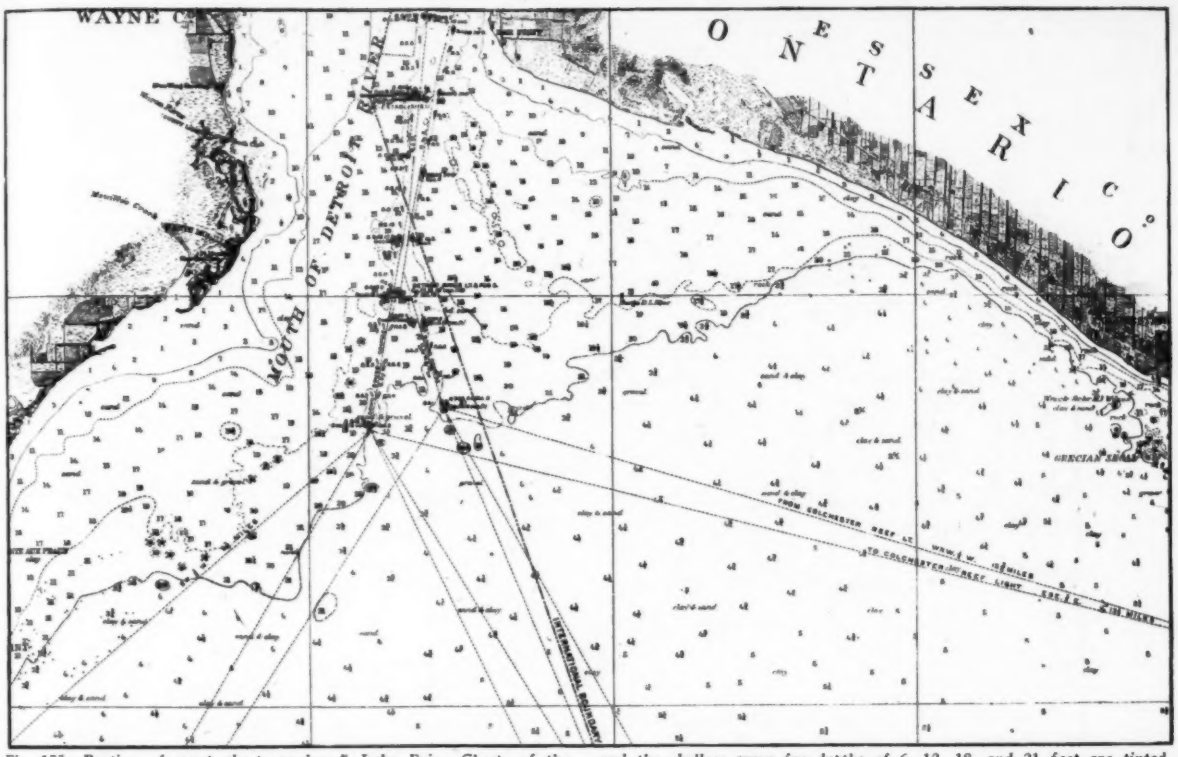
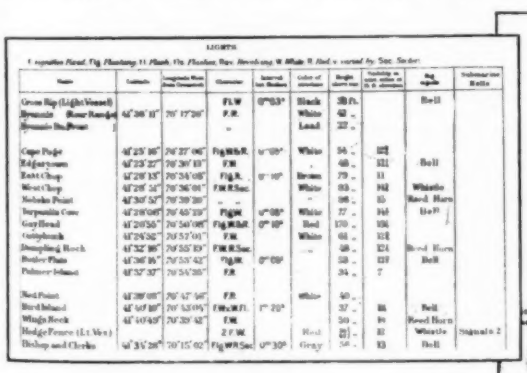


Fig. 175—*Portion of coast chart number 7 Lake Erie. Charts of the Great Lakes and Inland water ways are published by the War Department, Corps of Engineers with principal offices at Detroit, Michigan. These charts differ somewhat from the Coast and Geodetic survey charts as will be seen. A particularly useful feature is the magnetic courses and distances which are given between the principal points on the chart. The system of buoys is generally the same, although the symbols used are not identical. The practice of leaving red buoys to starboard and black buoys to port on entering harbors from seaward obtains as on salt water. The method of indicating depths of water is slightly different from the coastwise charts. The soundings are given in feet and the shallow areas for depths of 6, 12, 18, and 21 feet are tinted in blue. The deepest tint being used in the shallowest water, while the lightest tint is used in the 18 to 21 foot zone. The soundings on the untinted portions of the charts are given in fathoms. Since tides are unknown on the fresh water lakes the soundings are referred to a standard low water datum. A comparative table of water elevations being given on the chart. Further information of use to the navigator is a tabulation of the magnetic variation, lists of dry docks within the scope of the chart and similar data. Particular attention is called to all lighted aids to navigation by printing a small yellow circle around each light. This causes them to stand out plainly on the chart*



LIGHTS

F signifies Fixed, Fl Flashing, Fl Flash, Occ Flashes, Occ Revolving, W White, R Red, v varied by Sec. Sector

Name	Latitude	Longitude from Greenwich	Character	Interval Sec. Seconds	Color of structure	Height above sea	Visibility in miles when in N. S. structure	Sig. signals	Submarine Bells
Green Hip (Light Vessel)			Fl.W	0"0.5"	Black	38 Ft.		Bell	
Dynamite (Rear Range)	41°26' 11"	70° 17'20"	F.R.		White	42 "			
Dynamite (Front)			"		Land	22 "			
Cape Poge	41°23' 16"	70°27' 06"	Fl.g.W.R.	0"0.5"	White	34 "	12		
Edgartown	41°23' 27"	70°30' 13"	F.W.			48 "	12	Bell	
East Chop	41°28' 15"	70°34' 05"	Fl.g.R.	0" 10"	Brown	79 "	11		
West Chop	41°28' 54"	70°36' 01"	F.W.R.Sec.		White	93 "	14	Whistle	
Nobska Point	41°30' 57"	70°39' 39"	" "		"	98 "	15	Reed Horn	
Tarpaulin Cove	41°28'00"	70°46' 29"	Fl.g.W.	0"0.5"	White	27 "	14	Bell	
Gay Head	41°21'36"	70°50' 08"	Fl.g.W.R.	0" 10"	Red	170 "	15		
Cuttyhunk	41°24'32"	70°57' 01"	F.W.		White	61 "	12		
Dumpling Rock	41°32' 16"	70°55' 13"	F.W.R.Sec.			48 "	12	Reed Horn	
Butler Flats	41°36' 18"	70°55' 42"	Fl.g.W.	0"0.5"		58 "	12	Bell	
Palmer Island	41°37' 37"	70°54' 38"	F.R.			34 "	7		
Red Point	41°39' 08"	70°47' 46"	F.R.		White	40 "			
Bird Island	41°43' 10"	70°53' 05"	F.W.R.Fl.	1" 20"		37 "	16	Bell	
Mingo Rock	41°49'40"	70°39' 42"	F.W.			30 "	10	Reed Horn	
Hedge Fence (Lt. Ves.)			2 F.W.		Red	22 "	12	Whistle	Signals 2
Bishop and Clerks	41°31' 26"	70°15' 02"	Fl.g.W.R.Sec.	0"3.0"	Gray	54 "	13	Bell	

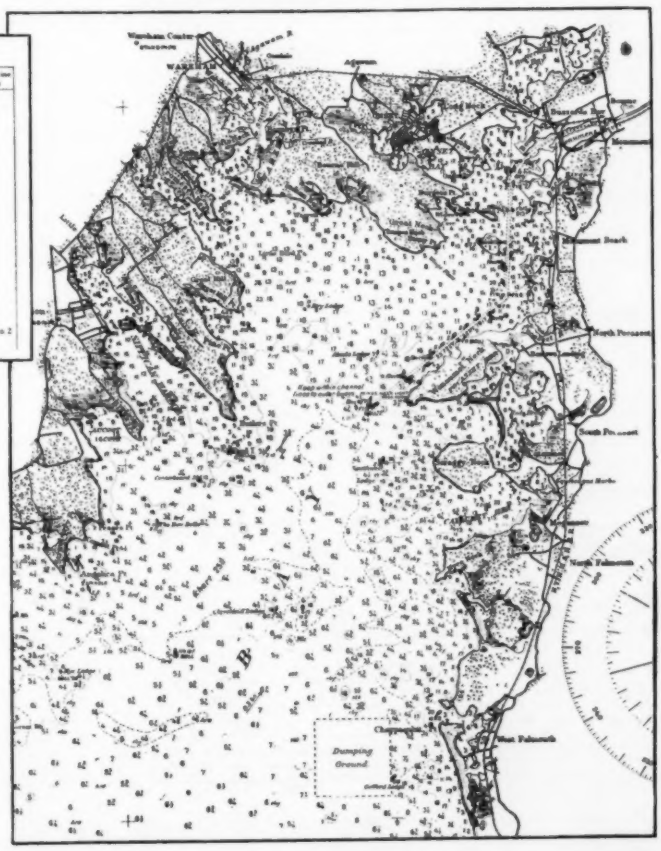
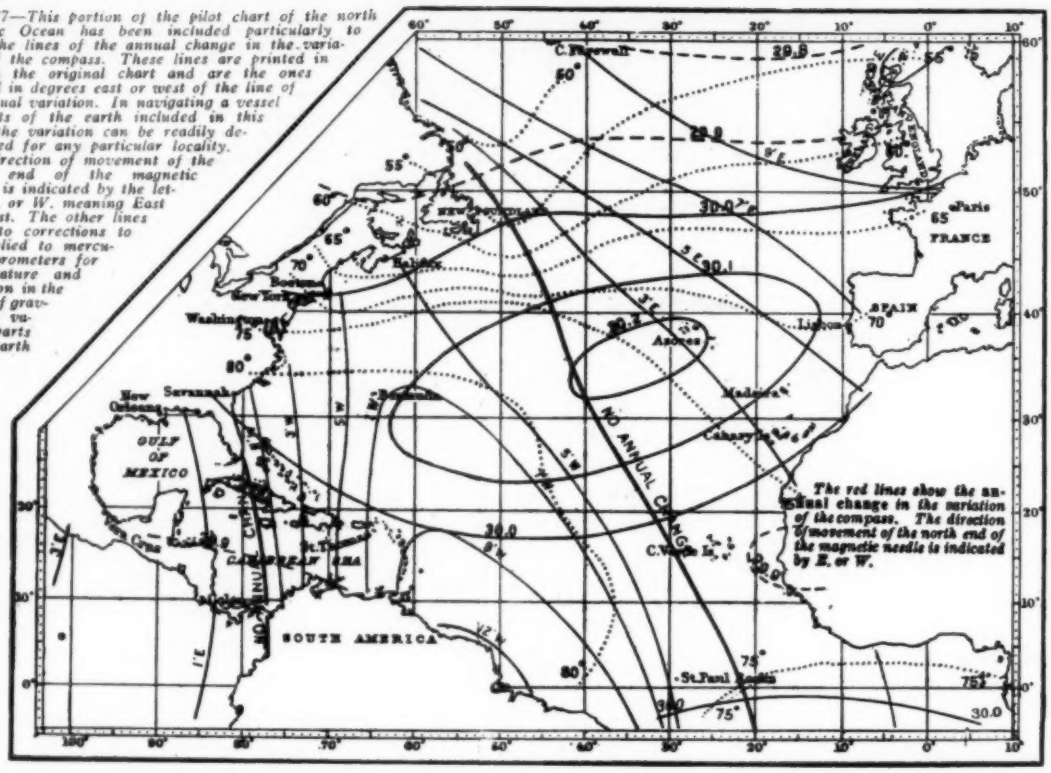


Fig. 176—*This section of chart number 112 is a portion of Buzzards Bay, Massachusetts, and is in the main similar to other charts previously discussed. The scale is 1 to 80,000 and the method of indicating soundings in feet on tinted areas, and fathoms on untinted areas is followed as on the Lakes charts. The light list reproduced from this chart duplicates the information on the general light list for the various lights which are found on this particular chart. It is not possible to give all this data on the chart at the light itself. The supplementary light list on the chart is therefore particularly valuable. The dredged channel which leads to the Cape Cod Canal entrance is plainly shown with steering ranges and numerous buoys for the correct guidance of the stranger. It is a simple matter to take a boat through this channel as the buoys are very close together. A feature which has not appeared on other charts discussed so far is the current strength arrow which indicates the average direction and strength of current. If the arrow has tail feathers it indicates a flood current. If as in this case the tail feathers are omitted it indicates an ebb current*

Fig. 177—*This portion of the pilot chart of the north Atlantic Ocean has been included particularly to show the lines of the annual change in the variation of the compass. These lines are printed in red on the original chart and are the ones marked in degrees east or west of the line of no annual variation. In navigating a vessel in parts of the earth included in this chart the variation can be readily determined for any particular locality. The direction of movement of the north end of the magnetic needle is indicated by the letters E. or W. meaning East or West. The other lines refer to corrections to be applied to mercurial barometers for temperature and variation in the force of gravity in various parts of the earth*



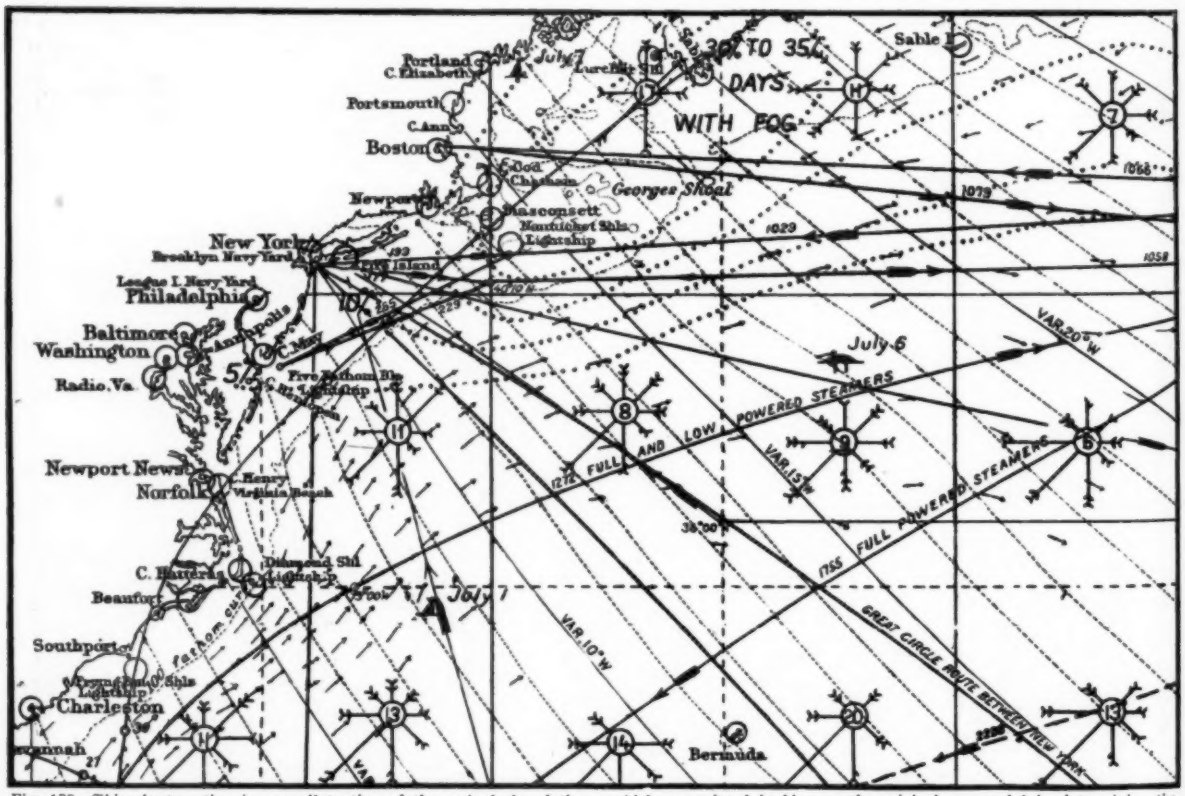


Fig. 178—*This chart section is a small portion of the main body of the pilot chart of the north Atlantic Ocean. It will show many things of value to the navigator. There are for example the dotted lines which are printed in blue on the original to indicate the percentage of days in which fog can be expected for the month of August which is the date of the particular chart which was reproduced. The highest precentage will be noted as 30 to 35. The successive contours will show 20, 10 and 5 percent of days in which fog will prevail. The full lines which are shown represent the accepted tracks for full powered steamers and low powered steamers in sailing from European to Atlantic Coast ports. The arrows which are printed in blue on the original are useful in determining the prevailing wind conditions for the various zones indicated on the chart. The length of the arrow determines the strength, and its direction the compass point from which the wind comes. The number of feathers shows the average force of the wind on the Beaufort scale. The length of arrow determines the number of times in each 100 observations that the wind has blown from or near the given point. The direction of the arrow indicates the compass point from which the wind comes. The figure within the circle indicates the number of hours in which the wind is variable. The circles on the coast line are indications of radio stations*

CONVENTIONAL SIGNS
ADOPTED BY THE UNITED STATES GEOGRAPHIC BOARD

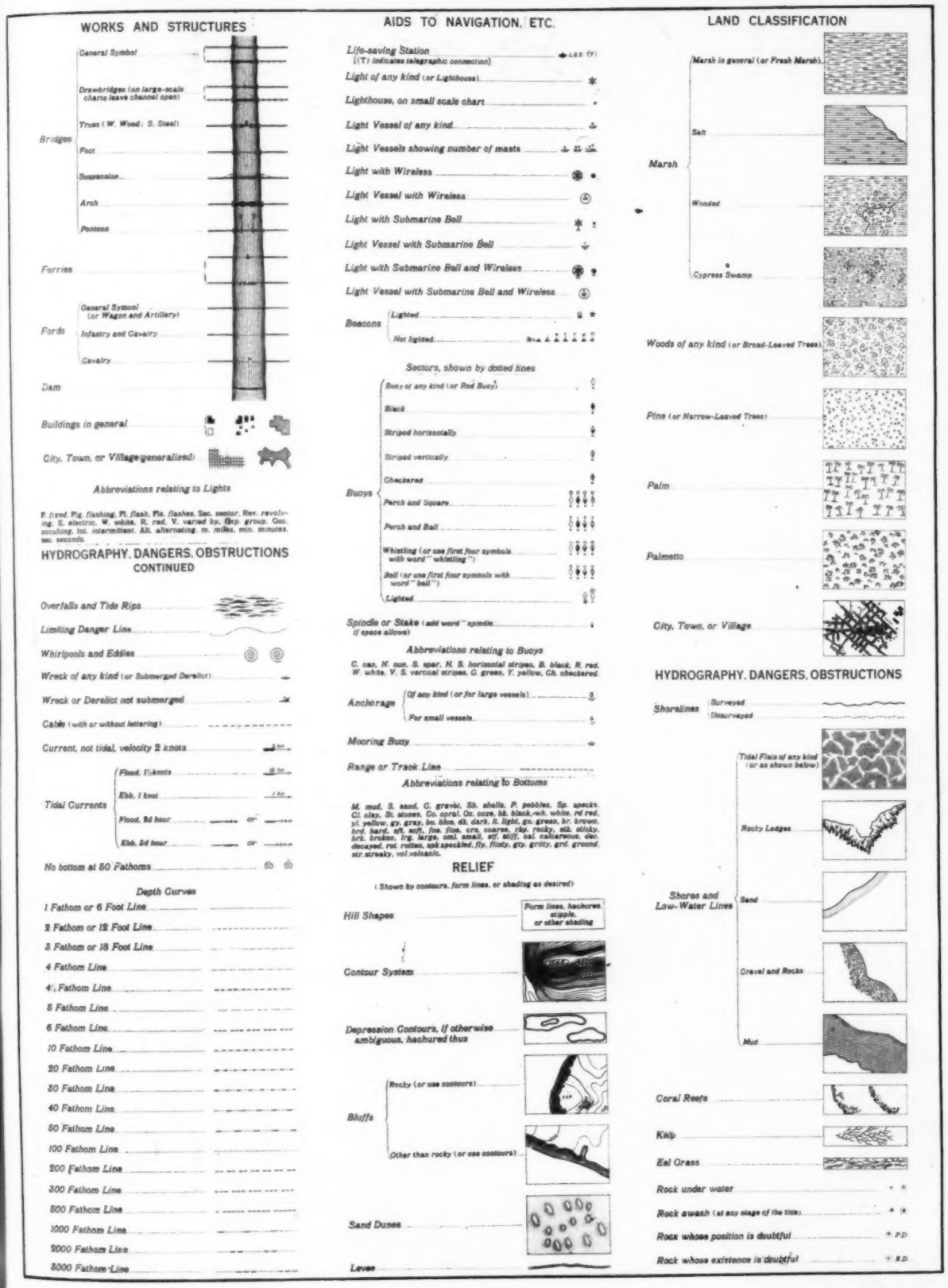
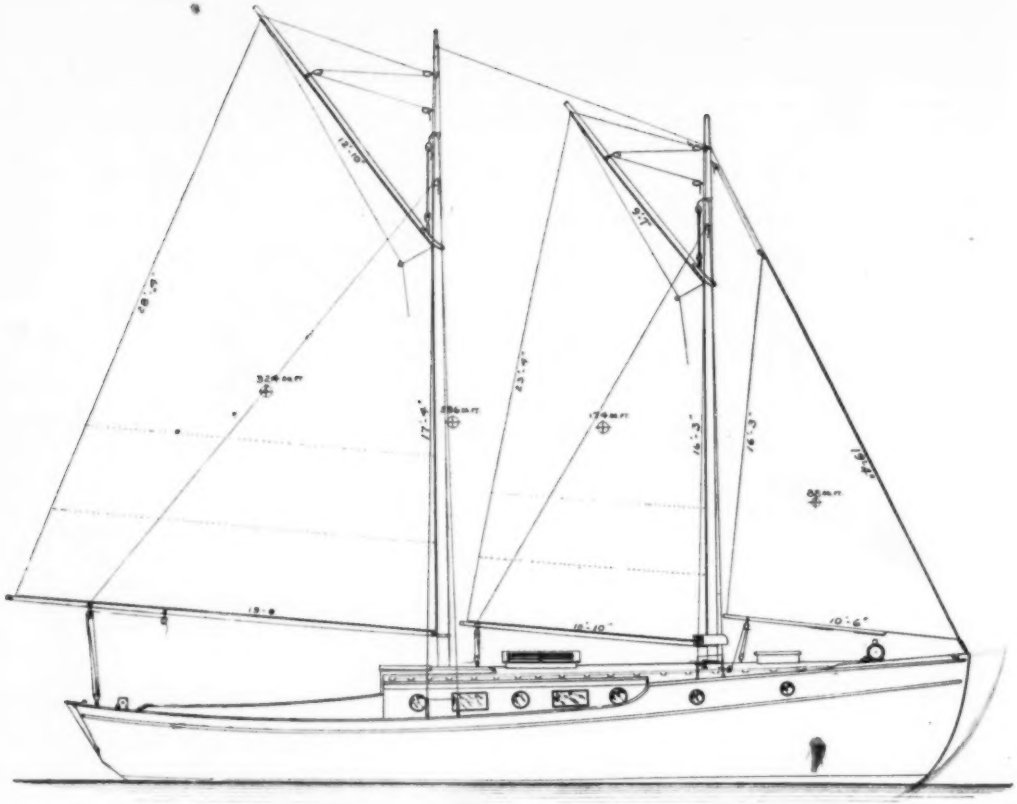


Fig. 179—*The standard conventional signs which are used on charts published by various government agencies are indicated in the diagrams above*



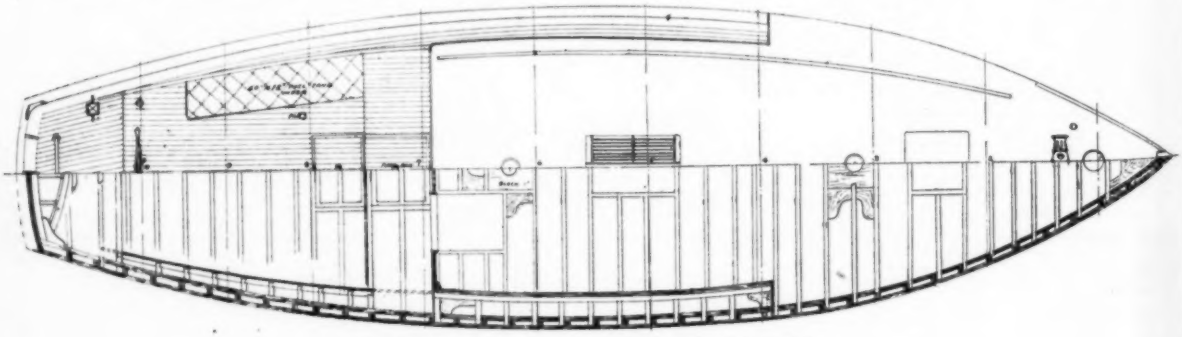
Sea Gull, a 41-Foot Auxiliary Schooner

A Complete Design Ready for Use of a Most Attractive All Around Deep Sea Cruising Yacht

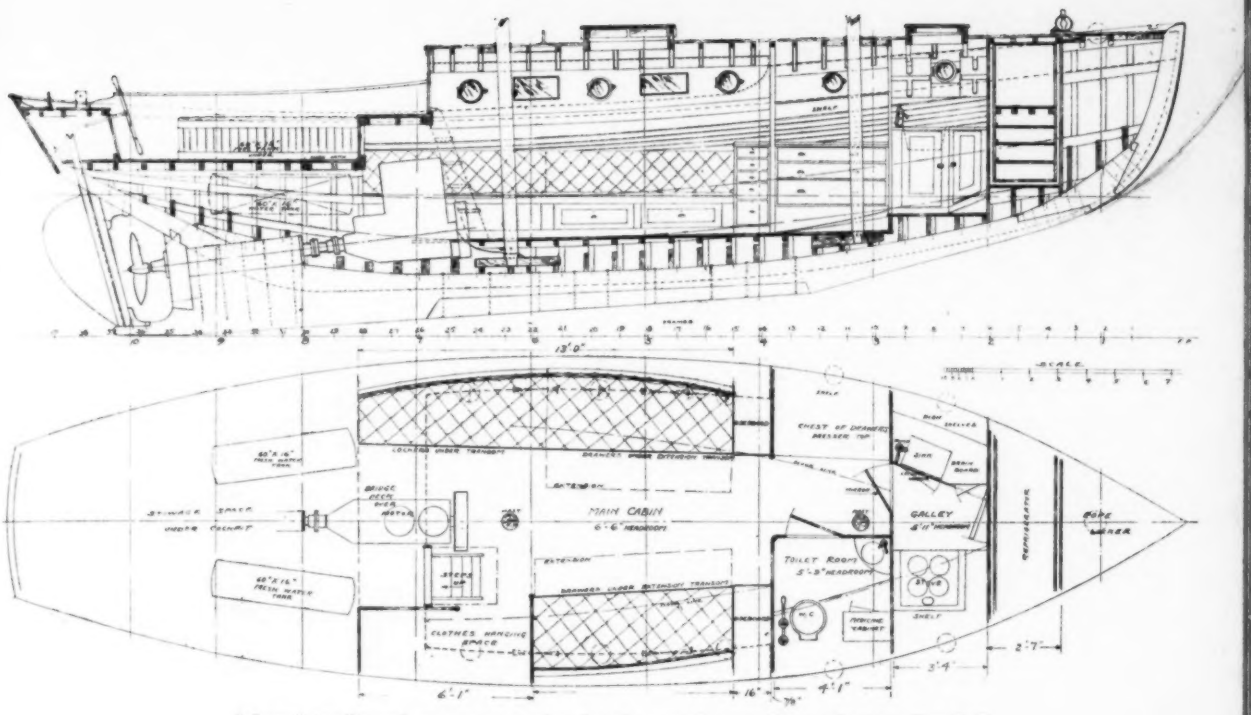
Designed Exclusively for MoToR BoatinG

By Wm. J. Deed

SEA GULL is probably lots bigger than most of our readers would care to build in their back yard, is in fact, a real job of boat building. But many are interested in getting complete plans and specifications of a craft of this type and size and some will care to roll up their sleeves and build her—those who have built craft around 30 feet will likely be able to tackle Sea Gull—so we give her plans in this issue. She is a good combination of sail and motor boat, looks well, has comfortable cabin and deck room, will perform well under sail or power, and will handle easily under all conditions. Few craft of 40 feet length have a schooner rig, but it is very attractive from a cruiser's standpoint and Sea Gull's rig is practically all inboard and of small areas so that one man can handle her without too much trouble. A ketch rig for a boat of this size is good, too, but the layout below decks lends itself better to a schooner rig. The cockpit is large enough to accommodate quite a good size party, who can also sit to windward along the trunk cabin. The bridge deck ties the boat together well just at the right point and the motor located under same and with a clear space around for getting at it makes for efficiency on the part of this item of equipment, for a motor won't do its best tucked away in a corner where you can't get at it to keep it in best



Half deck plan and beam plan for Sea Gull



Inboard profile and arrangement plan for the seagoing auxiliary schooner Sea Gull

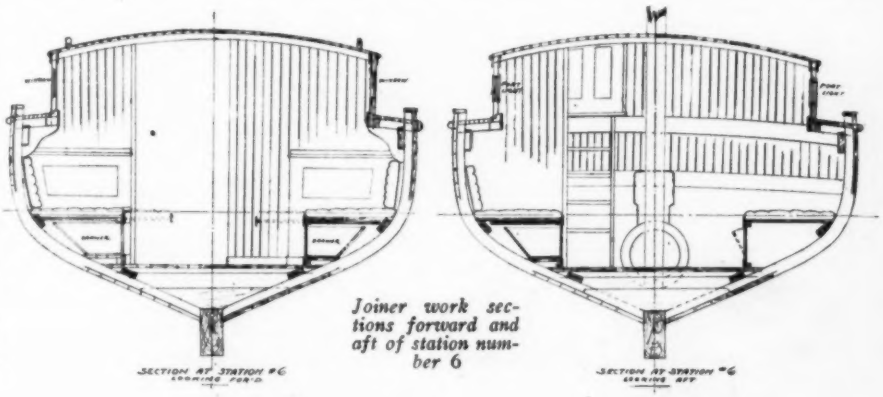
condition. Yet one does not want to fall all over it in the middle of the cabin; we believe that the arrangement we show is good.

With this rig, if it comes on to blow suddenly and you have a load of women and children you can douse the foresail right from the cockpit and be under safe canvas, or you can douse the main sail and run under jib and foresail with the engine running to help out. All sheets, halyards, and downhauls lead to the cockpit within reach of the man at the wheel as they properly should. She is not tremendously deep draft and it is not expected that you can carry all sail in a gale, but if you carry the proper amount of sail for the breeze you will find that she will handle well under canvas; when the wind is up and down the mast forget the sails and use the motor. This should be of 15 to 25 horsepower to be of best service, as less power would hardly be enough to push her fast enough for manoeuvering and much more power would be wasted. For speeds of 8 to 10 miles an hour are suited to Sea Gull. And install a real motor, a husky brute that will swing a big two-blade wheel. Probably some of you will say this is all wrong and will want to put in a high speed machine, but we believe a medium speed motor is best, but if you can get a faster motor that can swing the proper wheel, one of 26 to 30 inches diameter, and stand up, that's up to you, but don't try to drive her with a small fast wheel, for it can't be done.

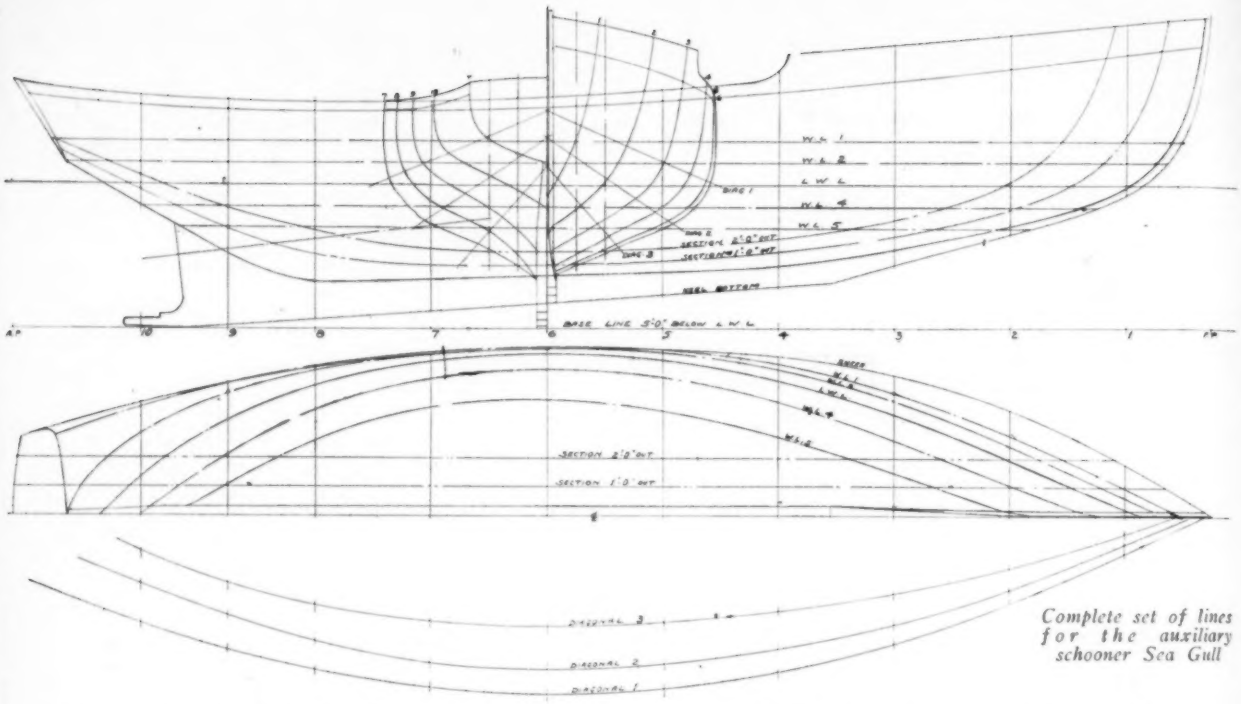
We cannot satisfy everybody on the cabin plan and it's no use trying in one design; it would require a few million. But just look over Sea Gull's interior and see if you don't see the means of enjoying a good cruise, make it as long as you wish. We don't believe in cutting a cabin all up into small rooms. Every cruiser needs one good big cabin where everybody can get together for the dining, card playing, music, and lounging about. A cruiser also should have the privacy of a stateroom if it can be had, but if both cannot be had for lack of space we'll vote for the big cabin and curtain off into state rooms; if that doesn't suit the other fellow, if his snoring penetrates, then throw him out into the cockpit where there is room for pneumatic or other mattresses to be spread. But it is certain that the big cabin is needed first, so heavy curtains can be hung to make a stateroom for the ladies. Two extension transoms make berths 4 feet wide and there is also a wide transom. The wardrobe is extra large, being 6 feet by 2 feet, and full length. This will be appreciated by the experienced cruiser. And the immense chest of drawers 4 feet long will likewise be very welcome. The top can be

The designs published each month in this series are getting better all the time. The ninth design this month is for an able auxiliary schooner of 41-feet. The popularity of the auxiliary schooner is growing rapidly among those who do real cruising. It is a type of vessel which has most to recommend it for all around cruising ability.

Sea Gull is sufficiently large to provide excellent cabin and deck space and small enough to be safely handled by one man. In addition, power enough to make her independent of the wind is installed.



Joiner work sections forward and aft of station number 6



Complete set of lines for the auxiliary schooner Sea Gull

used as a chart table as well as for dresser and the large drawers will accommodate clothes without too much folding, which is the bane of those who cruise with clothes neatly folded and pressed when the cruise begins and that look like the left-overs on the counter after a bargain sale at the end of a cruise. Take your good clothes on this craft and spread them out in this big chest of drawers. A full length mirror on the galley door adds to the facilities of dressing for the ever interesting trip ashore. The cabin headroom is 6 feet 6 inches.

The galley is a real one, with a real stove, a real refrigerator (man-size), a real sink and dresser. You can carry enough food for more than one meal in this galley and you can cook it, too, without standing on your ear and getting one foot on the stove or the other in the sink while performing the duties of chef. There is 5 feet 11 inches clear headroom here, gained by making the boat raised deck type. Two 50-gallon water tanks under the cockpit furnish the necessary supply for a long cruise, or one tank can be used for fresh water and the other for that mysterious concoction guaranteed to kill or cure that you have been so busy preparing at home of late. At any rate, there's 100 gallons of liquid, enough for most any ordinary cruise. We have specified the refrigerator built of Balsa wood; why bother with ground cork, charcoal, and other insulating materials when you can get a real insulation with this wood?

By using fixed lights of glass instead of hinged windows in the sides of the trunk we secure watertightness as well as light; we add six hinged ports for added ventilation as well as light and these can be clamped tight, so that if she gets a knock-down there will be no danger of water entering.

We are not going into instructions for building Sea Gull because anyone who would build her would either be experienced to such a degree that our instructions would be unnecessary or if inexperienced they would be inadequate and to such we want to say that if you want detailed instructions and suggestions just write to the Editor and they will be forthcoming. Mr. Deed has planned several combination motor and sail craft on the order of Sea Gull

DIMENSIONS GIVEN IN FEET, INCHES AND EIGHTHS
10-2-1 READS 10'-2⅛"

OFFSET TABLE
41' AUXILIARY SCHOONER SEA GULL
DESIGNED BY
WM. J. DEED NAVAL ARCH'T.
NYACK, N.Y.
JULY 1931

DIMENSIONS ARE TO OUTSIDE OF PLANKING

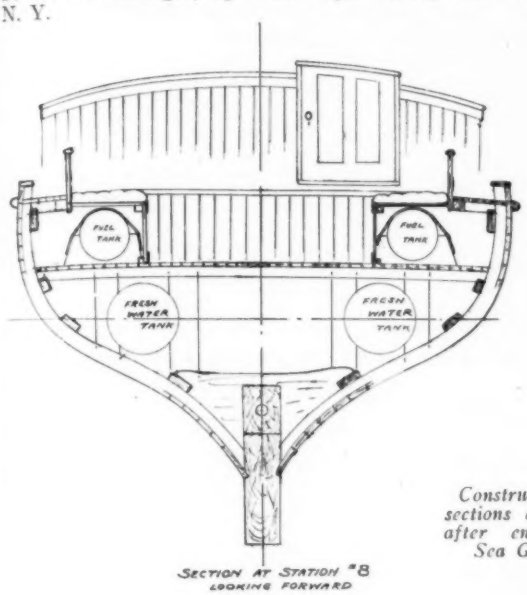
	STATIONS	F.P.	1	2	3	4	5	6	7	8	9	10	A.P.
HEIGHTS ABOVE BASE LINE	UPPER SHEER	10-10-0	10-6-6	10-2-1	9-10-0	9-0-0	8-3-2	8-0-2	7-10-3	7-10-0	7-10-6	8-0-4	8-6-0
	LOWER SHEER	9-10-0	9-6-0	9-0-0	8-6-4	8-2-0	7-10-5	7-8-0	7-6-4	7-6-0	7-6-7	7-8-4	8-0-4
	SECTION 1'-0 OUT		6-7-4	4-2-1	3-2-4	2-7-0	2-3-5	2-2-1	2-2-0	2-6-5	3-5-0	4-10-0	6-1-1
	" 2'-0" "			5-1-4	3-10-0	3-1-4	2-9-0	2-7-4	2-8-6	3-4-5	4-2-4	5-4-0	6-7-0
	RABBET		4-10-6	3-6-4	2-8-4	2-1-6	1-11-2	1-9-2	1-8-0	1-7-2	2-6-6	4-3-2	
	KEEL BOTTOM		4-7-4	4-3-2	2-2-0	1-5-0		STRAIGHT			0-1-2		
HALF-BREADTHS	UPPER SHEER		1-9-4	3-8-0	4-10-0	5-6-0	5-9-0	5-9-4	5-7-2	5-1-6	4-7-2	3-10-6	2-8-0
	LOWER "		1-8-0	3-6-0	4-8-2	5-5-5	5-9-0	5-9-4	5-7-3	5-2-0	4-7-4	3-11-0	
	RABBET		0-2-4	0-2-4	0-3-0	0-4-0	0-4-0	0-4-0	0-4-0	0-4-0	0-4-0		
	KEEL BOTTOM		0-0-4	0-0-4	0-2-6	0-4-0	0-4-0	0-4-0	0-4-0	0-4-0	0-4-0		
	W.L. 1		0-11-4	2-9-5	4-3-4	5-3-2	5-8-6	5-10-0	5-7-4	5-2-0	4-6-7	3-8-4	1-10-6
	W.L. 2		0-7-6	2-5-2	4-0-4	5-1-0	5-8-0	5-9-4	5-6-7	5-0-4	4-3-3	2-10-2	
	L.W.L.		0-2-4	1-10-4	3-6-4	4-8-4	5-5-0	5-7-3	5-4-2	4-7-4	3-4-0	1-4-0	
	W.L. 4			1-1-0	2-7-4	3-11-2	4-10-0	5-1-0	4-9-4	3-8-0	2-8-6		
	W.L. 5				1-6-0	2-8-4	3-8-0	4-0-3	3-9-0	2-2-2	1-1-0		
DIAGONAL 1			1-3-2	3-0-0	4-5-0	5-5-0	6-0-0	6-2-0	5-11-0	5-4-0	4-7-4	3-8-0	2-3-4
" 2			0-11-4	2-6-2	3-8-5	4-6-4	5-1-0	5-3-4	5-1-0	4-3-6	3-5-0	2-4-0	1-0-4
" 3			0-6-6	1-9-4	2-7-7	3-3-2	3-7-6	3-9-4	3-7-4	3-0-4	2-4-0	1-3-0	

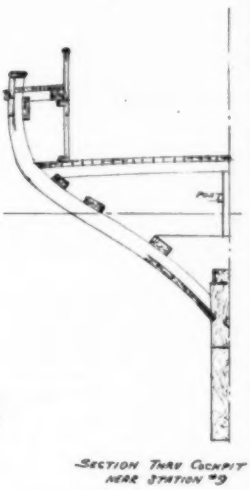
DIAGONAL 1 INTERSECTS PERPENDICULAR 7-6-4 ABOVE BASE LINE AND L.W.L. 5'-10-4 OUT
" 2 " " 6-7-6 " " " " W.L. No 5 4-7-2 "
" 3 " " 5-7-6 " " " " BASE 4-10-6 "

Offset table for constructing the auxiliary schooner Sea Gull

and we can assure our readers of a splendid little ship if they build one.

Arrangements have been made whereby those desiring full scale blue prints of the drawings for Chum, Shrimp, Nomad, Dolphin, Porpoise, Nautilus, Penguin, Whale or Sea Gull can secure them at nominal cost by addressing F. W. Horenburger, 63 West 184th Street, New York, N. Y.





Construction sections at the after end of Sea Gull

Specifications

In General: All material and workmanship shall be first class. Boat shall be built under cover protected from the weather and shall be covered by insurance while under construction. All lumber shall be air-dried, free of all loose knots, checks, shakes, dry rot, sap, etc., that would render it unfit for use in first class construction. All fastenings not otherwise specified, shall be best galvanzied stock and all galvanized fastenings to be hot-dipped.

The drawings and these specifications are to co-operate so that work shown on drawings, but not mentioned in these specifications, or vice versa, is to be executed just as though fully treated in both.

The completed boat to measure: Length over all, 41 feet 6 inches; breadth, 11 feet 7 inches; draft, 5 feet.

Hull

Keel: To be of white oak sided 8 inches, molded as per plan, rabbetted for planking.

Iron Keel: Iron keel of about 2,500 pounds to outlines shown to be bolted with 1¼-inch galvanized bolts as indicated.

Stem: To be white oak sided 8 inches, molded 12 inches, secured by 1 inch galvanized bolts. To be bored ¼ inch larger than diameter of shaft installed.

Shaft Log: To be white oak sided 8 inches, molded 12 inches, secured by 1 inch galvanized bolts. To be bored ¼ inch larger than diameter of shaft installed.

Stern Post: To be white oak sided 8 inches, molded 9 inches, secured by 1 inch galvanized bolts as shown; to be tenoned into horn timber at top.

Horn Timber: To be white oak sided 8 inches, molded as per plan, to be secured by 1 inch galvanized bolts.

Transom: To be made of two layers of ⅞ inch white oak with thick coating of white lead between. To have oak framing 2 inches by 3 inches, with oak quarter knees and center line knee. Planking to form miter with transom as shown.

Floor Timbers: All except those at frames Nos. 22 to 29 to be white oak sided 2⅛ inches, molded as per plan. Floor timbers to be fastened through keel by 1 inch galvanized iron bolts and riveted to frames.

Frames: To be white oak sided 2 inches, molded 2½ inches, spaced 12 inches, steam bent in the boat. Each frame to be fastened by two galvanized boat nails.

Planking: To be best long leaf yellow pine to finish not less than 1¼ inches thick, laid in narrow strakes as long as possible, with butts well shifted and secured to butt blocks tightly fitted between frames. Each plank to be fastened to each frame by two galvanized chisel point cut boat nails clinched over frame in all strakes not over 4½ inches wide; in wider strakes three fastenings to be used. Garboard and hood ends of planking to be fastened by brass screws. All heads of fastenings to be countersunk and plugged. Seams to be tight on the inside and to be caulked with yacht cotton, payed with paint, and finished flush with white lead putty. Planking to be planed and sanded to a smooth finish.

Raised Deck Clamp: To be yellow pine 2 inches by 5 inches secured by rivet and boat nail to each frame.

Main Sheer Clamp: To be 2 inch by 7 inch yellow pine secured same as Raised Deck Clamp.

Bilge Clamps: To be 2 inch by 5 inch yellow pine secured same as Raised Deck Clamp.

Main Deck: Beams to be white oak or yellow pine, Bridge Deck to be formed by carrying Main Deck right across boat. Beams at forward and aft ends of Bridge Deck and beam at forward end of aft deck to be oak 2½ inches by 3¾ inches. Other beams and flush hatch framing to be 2⅛ inches by 3 inches. In way of house oak carlin or sill 3¾ inches by 3 inches to be fitted to take mortised ends of beams. Beams to be fastened to clamps. To be crowned as per plan. Oak or hackmatack knees to be fitted as shown and oak hanging knee to be fitted at beam at frame No. 22.

Deck planking to be 1¼ inch by 2 inch white pine with suitable white oak planksheer. Seams to be payed and caulked and finished flush with black marine glue or seam composition. Planksheer to be fitted around frames.

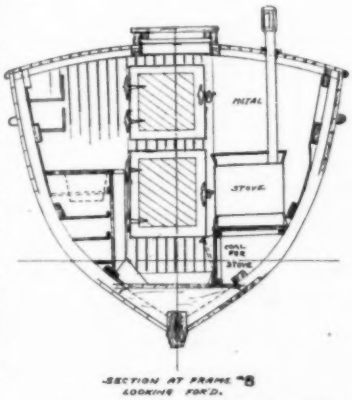
Bulwark Rail: Planking to be carried up to form rail with 1¼ inch by 4½ inch oak cap. Scuppers of suitable size to be cut.

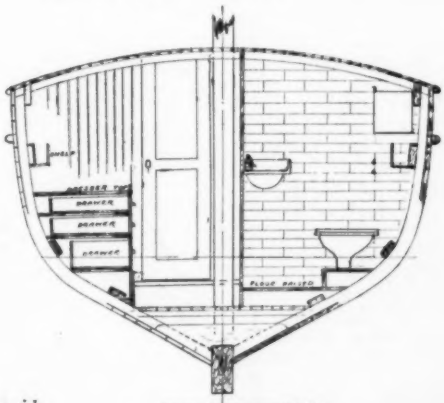
Raised Deck: Beams to be 1⅜ inches by 2¼ inches crowned and spaced as per plan, with hanging and lodging knees fitted as shown, hanging knees to be fitted abreast mast to two beams each side. Deck planking to be ⅞-inch tongued, grooved, and V-d one side white pine, cypress, or spruce nailed, heads punched in under flush, coated with thick white lead paint and covered with 10 ounce canvas with edges turned down over deck edge and fastened and covered by 1¼ inch oak half-round. At skylight, companionway, and hatch canvas to be turned up under ⅜ inch finish piece.

Raised deck construction continued aft over trunk cabin.

Trunk Cabin: Oak rabbetted sill 2 inches by 3 inches to be screwed to deck to take lower edge of trunk side which is to be 2 inch oak (or mahogany if mahogany finish boat is desired). Trunk side to be fastened through sill by ¾ inch galvanized

(*Continued on page* 58)





Construction sections forward and amidship of Sea Gull

SMALL MOTOR BOATS

Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the November Prize Contest

1. Describe and illustrate the most satisfactory way to heat a cabin cruiser, with both fore and aft cabins.

(Suggested by G. T. B., New Westminster, B. C.)

2. Describe and illustrate any changes, repairs, or replacements you have made to decrease vibration in the motor or other parts of your boat.

(Suggested by D. McC., Cleveland, O.)

Rules for the Prize Contest

ANSWERS to the above questions for the November issue, addressed to the Editor of MoToR BoatinG, 119 West 40th St., New York, must be (a) in our hands on or before September 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used.

QUESTIONS for the next contest must reach us on or before September 25. The Editor reserves the right to make such changes and suggestions in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of MoToR BoatinG of which the advertised price does not exceed $25, or a credit of $25 on any article which sells for more than that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of MoToR BoatinG of which the advertised price does not exceed $5, or a credit of $5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

Attaching An Emergency Rudder

Suggestions Which Will Enable the Unfortunate Motor Boatman Whose Rudder Is Carried Away to Make a Safe Harbor

Answers to the Following Question Published in the July Issue

"Describe and illustrate construction and method of attaching emergency rudder to replace one lost while under way"

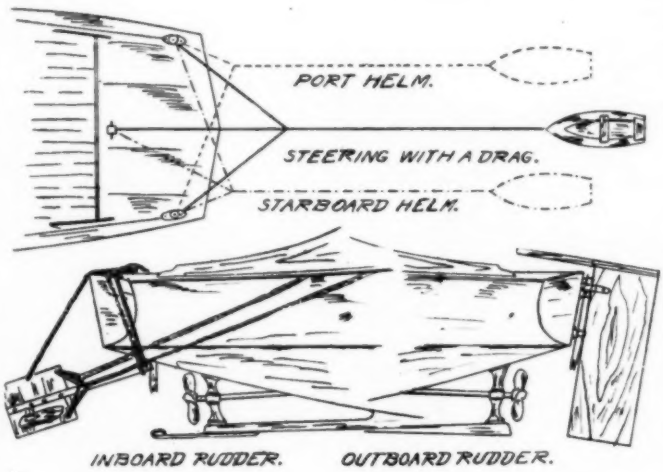
Emergency Steering Rigs

(The Prize-Winning Answer)

YOUR first thought after the rudder has been carried away is to use an oar for steering. The oar will answer on small boats in an emergency, and on larger boats according to the size of the oar and the amount of sea on. Using the oar for any length of time would be a tiresome job, and the oar is apt to be broken by the hard over helm which will be necessary to hold her, even with the engine checked; so it would be advisable to immediately get a drag over the stern. Anything will do,—the bight of a long line, a pail, life preserver, or plank attached to a line and towed astern. The tender is also available if it can be kept from filling.

For best results the inboard end of the drag line should be made fast amidship and well forward. An oar may be rigged aft and used as a lever to handle the line across the stern, or where the steering gear is exposed, the drag line may be handled by lines attached to it and carried to the steering wheel. Steering will not be as easy as with the rudder but you will be able to hold the boat on a course and make port.

An emergency rudder may be rigged from a locker door and a floor board or any stout pole about five feet long. Remove a locker door approximately the size of the lost rudder, and screw, nail, or otherwise fasten the floor board or pole at its center. Sufficient weight to sink the rig should be attached preferably below the center. Provide for attaching lines at the top and bottom of the door and at the end of the pole by boring holes, cutting notches or nailing so that the lines will not slip. Strength and efficiency are the only considerations so don't waste time trying to do a neat job. Attach a line to the pole at its center to hold the rig in position against the stern post. To the door attach lines by means of a bowline through holes or notches and nail them securely. Do not draw the knot up tight. Leave it so as to form a bridle to hold the rig upright in the water. These lines are led



Improvised emergency steering devices suggested by W. B. M. have many good features

forward to hold the rig down and the rudder is moved by them. A short line over the stern completes the triangle, preventing the rig from dropping and stiffens the entire outfit.

Now that the rig is in position the steering method may be discussed. By attaching the side lines from the door to the steering wheel or a lever of some sort the rudder may be moved by them as required. Towing the drag on the port side tends to retard that side, thus throwing the bow to the same side and vice versa.

When an outboard rudder, one which is hung on the stern, has been carried away, it is very likely that the blade only will be broken off, leaving the stock intact above its hangers. In this case an emergency rig is simple. A long door or wide board may be lashed, wired or fastened with metal straps directly to the remaining rudder stock or its hangers. A stout stick nailed to the top of the door or board will answer for a tiller to which the steering lines may be attached, or the rudder may be moved by lines attached to the after end.

Definite instructions for rigging an emergency rudder suitable for all types of boats can hardly be given. The rig depends entirely on the material at hand and the ingenuity of the engineering force. However, no boat should cruise far from its home port or in open waters without some provision for an emergency rudder and the above suggestions may prove valuable. When you have a little time try out an emergency rig. Then if you are ever caught you will know just what to do and how to do it, also how the rig will work.

W. B. M.,
Newburgh, N. Y.

Clutch Control for the Water-Tight Cockpit

Clutch Control Arrangements Which Will Keep Water Out and at the Same Time Are Certain to Function Properly at All Times

Answers to the Following Question Published in the July Issue

"Describe an arrangement for installing the reverse lever in a water-tight self-bailing cockpit, the clutch being either in cabin or under cockpit floor"

Reliable Clutch Control

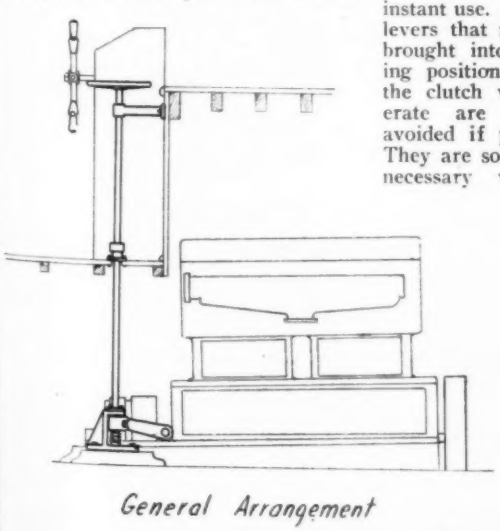
(The Prize-Winning Answer)

THE design and installation of a satisfactory cockpit control for the clutch is a simple mechanical problem, even if the cockpit is of the self-bailing type. The safety of boat and crew often may depend, however, upon the reliability of the clutch control and in spite of its simplicity the device should be planned and built with the same careful attention to detail that other major items of equipment such as the steering gear receive. Possibly the many unsatisfactory clutch controls that can be seen on otherwise fine boats are due to the devices being considered too simple to need much thought and attention. The mistake of slighting this important item of equipment must be guarded against and a control devised that will not only fit the boat and engine on which it is to be installed but also combine the features listed below.

(a) The control must be reliable. It must work every time.
(b) It must not affect the compass. Non-magnetic metals must be used in all parts near the binnacle.
(c) It must not injure the clutch. Some badly designed controls may jam the clutch too far in or leave it part way in and cause excessive wear.
(d) Must be handy. The clutch lever should be ready for instant use. Folding levers that must be brought into working position before the clutch will operate are to be avoided if possible. They are sometimes necessary where there is little room near the steering wheel.
(e) Must not be in the way and should not afford a dangerous stumbling or tripping hazard. The folding lever is often such a hazard when left in the working position.
(f) Should be clean. Sliding rods that pass through stuffing boxes should be arranged so that clothing will not come in contact with them.

Two accompanying sketches show controls that have been in satisfactory use for years. The one illustrated in Fig. 1 is the simpler and therefore the better of the two except where absolute water-tightness is required. It will be noted that there is no stuffing box where the vertical rod passes through the deck, but that it goes through a sleeve of some length. This sleeve will keep out all spray and rain except that which lands on the upper part of the control rod and trickles down it; and it will keep out solid water under all conditions except that of the cockpit, being several inches deep in it. If the cockpit were to be practically full for a few moments the sleeve would of course let quite a little water into the motor compartment but not enough to do any harm if the wiring is kept well away from the control rods as it should be.

The gear illustrated in Fig. 2 is rugged and satisfactory but lacks the advantages of simplicity and cheapness possessed by the other device. It has the advantage, however, of being absolutely water-tight. By placing the worm shaft in a hori-



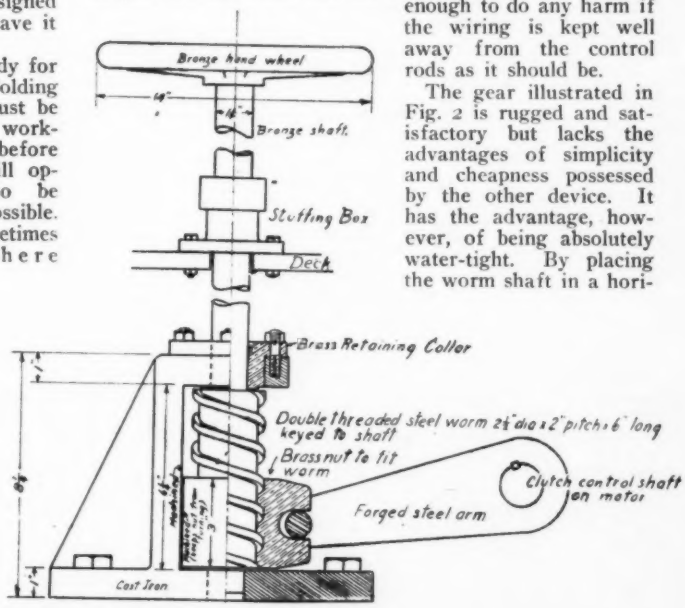


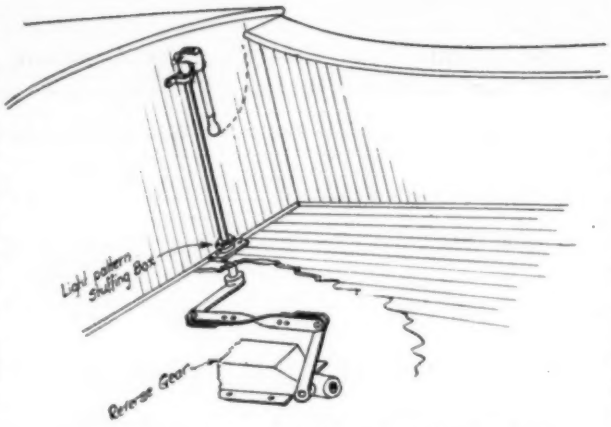
Fig. 2. An excellent clutch control device suggested by W. M. A.

zontal position a gear of this type may be used to good advantage when the steering wheel and controls are some distance from the engine as the long shaft that would be required is not apt to jam as is a long rod alternately in tension and compression. A double threaded quick pitch worm gear of this type should be so proportioned as to throw the clutch from neutral to either the ahead or astern positions with a little less than a half turn of the hand wheel. The starboard side of the wheel should move forward to throw the clutch into the ahead position if the clutch control wheel is located to starboard of the steering wheel and vice versa. In cases where the hand wheel method of control is out of the question because of lack of room a gear of this type could be so proportioned as to actuate the clutch with a comparatively slight movement of a horizontal or folding lever attached to the vertical shaft.

The ratio of lever lengths necessary to provide sufficient power at the clutch should be well thought out in advance of the work.

Complete dimensions are not given on the sketches because they would be of no use in designing a gear for another boat than the one in which the gear illustrated is in use. The designs do, however, show two satisfactory outfits and further illustrate the careful way in which the details of a satisfactory control gear must be worked out. The modifications of the controls necessary to adapt them to a boat where the clutch is in the cabin are too self evident to need description other than that given on the sketches.

W. M. A., Philadelphia, Pa.



A simple and substantial device suggested by W. E. M.

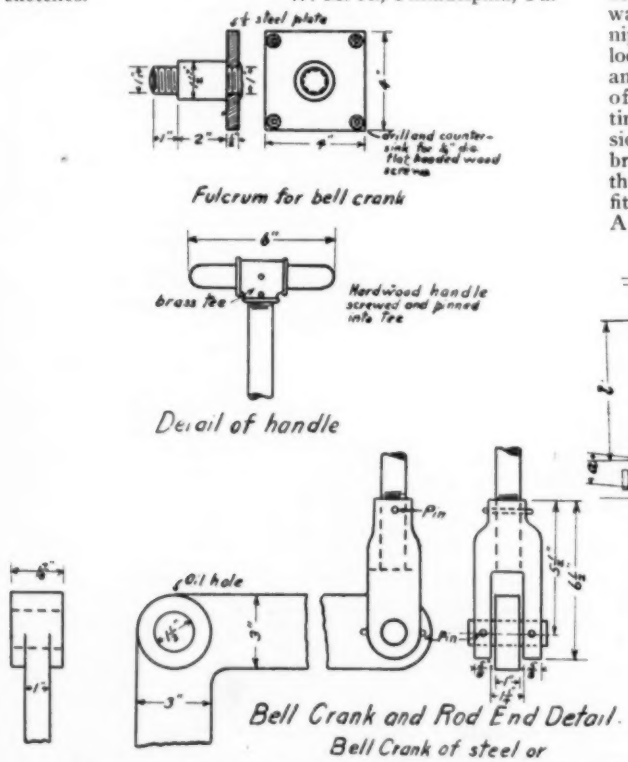
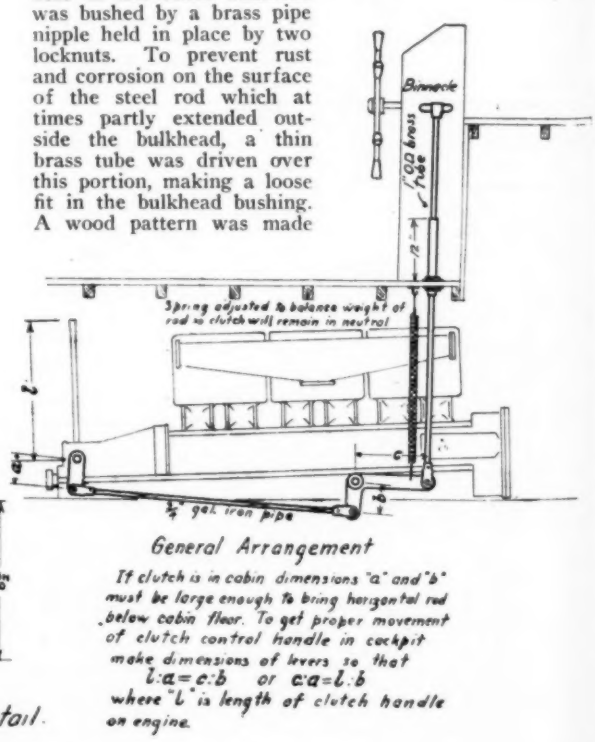


Fig. 1 of the clutch control devices suggested by W. M. A. has the advantage of simplicity

Water-tight Reverse Lever Installation

THE sketch shows a method of installing the reverse lever on the bulkhead of the cabin of a small cruiser so that there is no slot or other opening in the water-tight cockpit. This arrangement was in use for a number of years on a twenty-eight footer and gave complete satisfaction. The engine was a double cylinder heavy duty placed just forward of the cabin bulkhead with the reverse gear under the cockpit floor, access to same being provided by means of a hatch built up against the bulkhead and surrounded by a water-tight coaming six inches high. This particular engine had a reverse lever already in place alongside the forward cylinder and pivoted at the bed flange, working the clutch by means of a link extending aft. Such a lever and link, if not provided, could easily be rigged up, or if the clutch itself was in the cabin perhaps would not be necessary; all such details would depend entirely upon the character of the boat and engine layout.

The reverse lever was sawed off, leaving it about eighteen inches long, and the end drilled. Then a cold rolled steel bar, three-quarters of an inch in diameter, was turned down at one end to half inch and threaded for a handle clamp nut. It was then forged to the shape shown so that when extended through the bulkhead at a convenient height to be reached by the steersman, the inside end would reach to the drilled end of the inside lever, a forked coupling screwed to the end of the rod being pivoted thereto. The hole in the cabin bulkhead was bushed by a brass pipe nipple held in place by two locknuts. To prevent rust and corrosion on the surface of the steel rod which at times partly extended outside the bulkhead, a thin brass tube was driven over this portion, making a loose fit in the bulkhead bushing. A wood pattern was made for the handle and a brass casting obtained from it. The pattern was made straight as shown and the arms of the



(Continued on page 57)

Taking An Engine From the Boat

Several Useful and Practical Methods for Removing an Engine From the Boat Without the Use of Expensive Hoisting Gear

Answers to the Following Question Published in the July Issue

"Describe and illustrate a suitable method for removing the engine from the boat, without the use of an expensive chain hoist"

Rigging for Moving the Motor

(The Prize-Winning Answer)

THE method to be used to remove an engine from a boat is governed by the conditions such as the position, size and arrangement of the boat and of the engine.

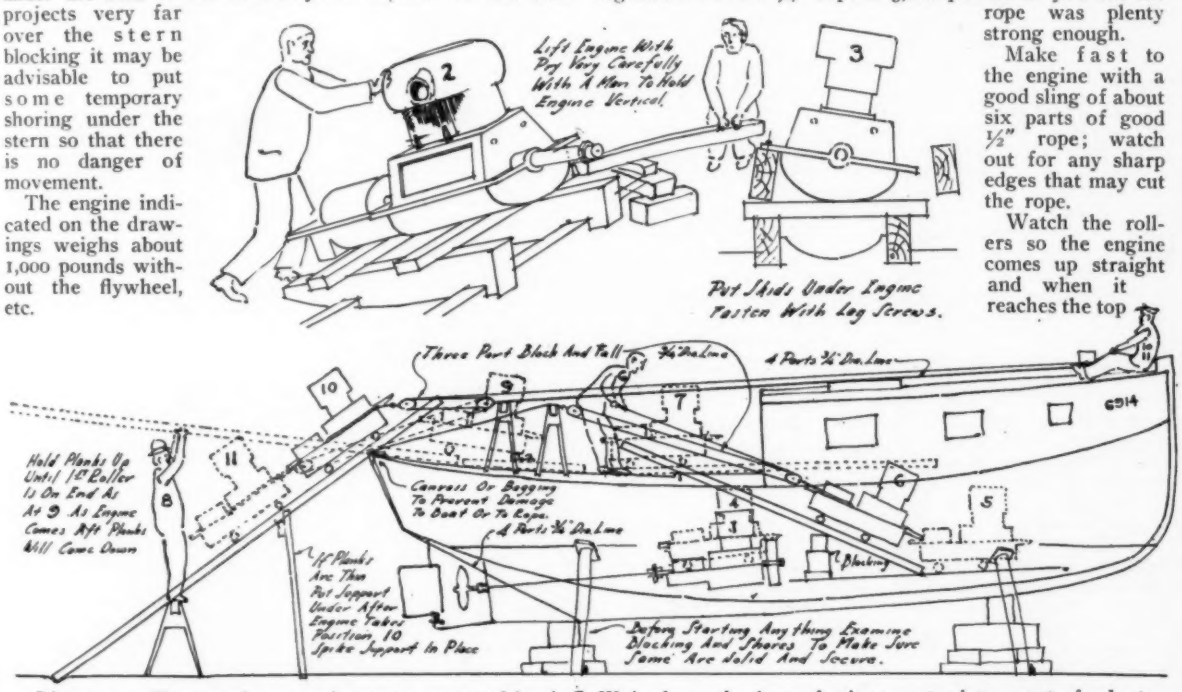
If the boat is small, say with a five horsepower engine weighing about four hundred pounds, this can easily be lifted up an inclined plank to the combing and then slid down to the ground on a plank set not less than 45 degrees without the use of any equipment other than a piece of rope to hold it back.

If the machine is large and a chain hoist is not available the best method is to roll the engine on rollers as shown on the accompanying drawings.

Extreme care must be exercised at all times as this is quite an engineering problem. But if you use your head, think, and do things slowly and carefully there should be no difficulty whatever.

Before starting anything examine the blocking and shores under the boat to see that they are secure. If the boat projects very far over the stern blocking it may be advisable to put some temporary shoring under the stern so that there is no danger of movement.

The engine indicated on the drawings weighs about 1,000 pounds without the flywheel, etc.



Diagrams to illustrate the successive stages suggested by A. G. W. in the work of transferring a motor into or out of a boat

Disconnect the engine, remove any small parts that may become broken. Also remove the exhaust manifold, carbureter, magneto and flywheel so as to reduce the weight as much as possible. Put a piece of cotton waste in the various holes to keep out dirt.

Now raise the engine from the bed with a pry, a little at a time, blocking up as you go, also have someone hold the engine in a vertical position, until you can get two pieces underneath the engine across the bed pieces as shown in Fig. 2.

Now put the skids one at a time under the bed angles, fasten with lag screws as per Fig. 3. The skids should be a bit deeper than the round of the crank pit so the pit will not interfere with the rollers.

Get two or three two-inch pipe rollers about a foot longer than the width of the bed. Put two rollers under the engine, Fig. 4, and roll same forward into the cabin as far as convenient, Fig. 5.

Put two good planks down, block up in center if necessary. Rig the block and fall, one end can be fastened to the keel around the blocking with a long rope as shown. This is safe if there are but two blockings under the entire keel as shown. But it is not advisable to do this if there are more than two blockings because at times the boat may rest lightly on the end block and the tension may pull the block out. In this case make the blocking more secure or get some other fastening. Put a wooden horse or a box behind the top block to give a straight lead to the falls.

Last spring I had occasion to pull an engine of this size up a 45 degree incline with a three part falls, it was hard work for two men to do the pulling. In this case the tension on each part of the falls when at rest was about 270 pounds and to overcome the inertia and the friction the tension must have been about 400 pounds. The breaking strain of new ¾" rope is 5,000 pounds so you see the rope was plenty strong enough.

Make fast to the engine with a good sling of about six parts of good ½" rope; watch out for any sharp edges that may cut the rope.

Watch the rollers so the engine comes up straight and when it reaches the top have a few short pieces of plank on the deck to protect same. As the engine reaches the top someone in the cabin can lift the end of the planks and the engine will come off easy, Fig. 7.

Now reverse the falls; make fast to sampson post; make sure the sling is properly secured so that there is no chance of it getting away when going down the incline; have some dependable person take a turn around the post so as to slack off a bit at a time as required. Now raise the outboard ends of the planks; roll the engine on, Fig. 9; push engine out a little at a time, holding back with the falls until the ends of the planks touch the ground, Fig. 10.

Now stop! before too much load is on the planks; brace the planks and make sure they are in proper shape to sustain the weight, then lower away.

Be sure the rope and the planks are good, do not try to do the job with rotten, old or too light material. Be sure you are right then go ahead.

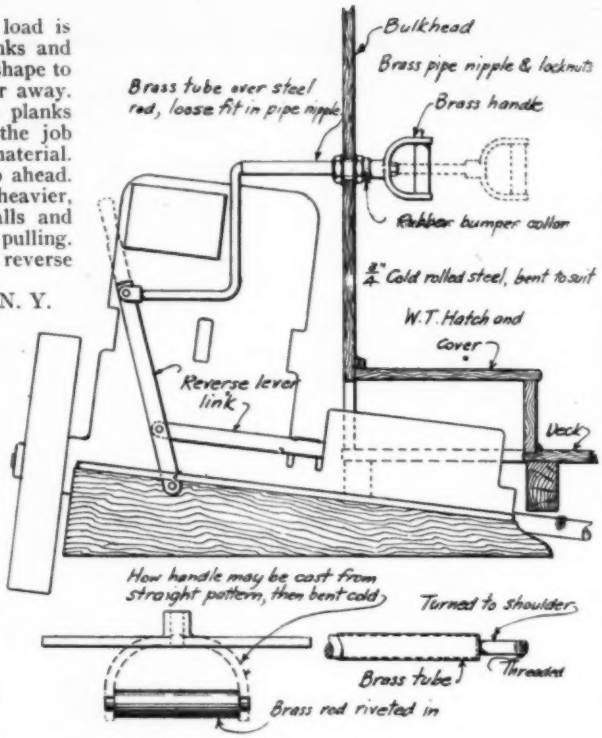
If the engine is much heavier, more parts can be put in falls and the boatyard crab can do the pulling.

To install the engine simply reverse the operation.

A. G. W., College Point, N. Y.

Removing the Motor With Inexpensive Equipment

REMOVING any but a small single or double cylinder motor without any hoisting equipment is quite a task, and when the motor is too heavy to be handled by two or three men a rig of some sort is necessary. Where a derrick, tree or a heavy beam is not available and the rig must be constructed from miscellaneous material at hand or purchased for the purpose the A frame or shear legs is the safest and most economical rigging, and is easily erected.



An unusually simple reverse gear control designed by H. H. P.

To rig the shear legs (shear poles) secure two stout spruce sticks, and old spars are fine, at least three times as long as the distance the motor must be lowered to reach the ground. Securely fasten them at the top and spread the foot about one-quarter their length, digging holes to prevent slipping, and push them up; or the poles may be stood up and then lashed. A piece of chain is best for lashing as it will bite into the poles and is not liable to slip. A rope lashing may be used with safety, although it will stretch considerably under a heavy load.

Stay the poles in position alongside the boat, using two guys back and one ahead. The back guys should be of heavier rope and well spread, carried well back and securely fastened. The head guy is only to steady the poles and need not be as heavy. In fastening these guy ropes provision for taking up or slacking is necessary in order to safely land the load. This is accomplished by making each guy fast to a block and tackle which is firmly fastened to a tree, post, or ground anchor. A board may be nailed across the foot to hold the footing more securely.

The position of the shear poles alongside the boat is important. The footing must be far enough from the boat to allow landing the motor without bringing the rig perpendicular, and the top should be as near directly over the engine bed or hatch through which the motor must be removed, as is possible.

Since the chain block is tabooed we will use a block and fall for the lifting. A tackle of two double blocks and ¾-inch diameter rope will handle any ordinary motor. The safe working load for new ¾-inch diameter Manila rope is 992 lbs. and a two part purchase is safe for four times that load. The strength of old rope is an unknown quantity, but a fair idea of its condition may be had by untwisting the strands for inspection. When the inside part shows dark or frayed the rope may be considered as unsafe for even half the above given working load which is based on a factor of safety of four. Leading the hauling part from the movable block will increase the power but requires a single block at the top to get the rope in position for hauling. A three part purchase (two treble blocks) may be used for extremely heavy motors or when short handed. Attach the pulling part to your automobile and see how easily the load is handled.

The lifting power of tackle blocks may be roughly estimated by adding ten per cent to the weight to be lifted for each pulley, over which the rope passes, and dividing by the number of parts at the movable block. For example, to lift 100 pounds with a two part purchase—adding ten pounds for each sheave and dividing the result by four gives 35 pounds; the pull required on the hauling part to raise 100 pounds. A man can easily pull 100 pounds on the hauling part of a tackle.

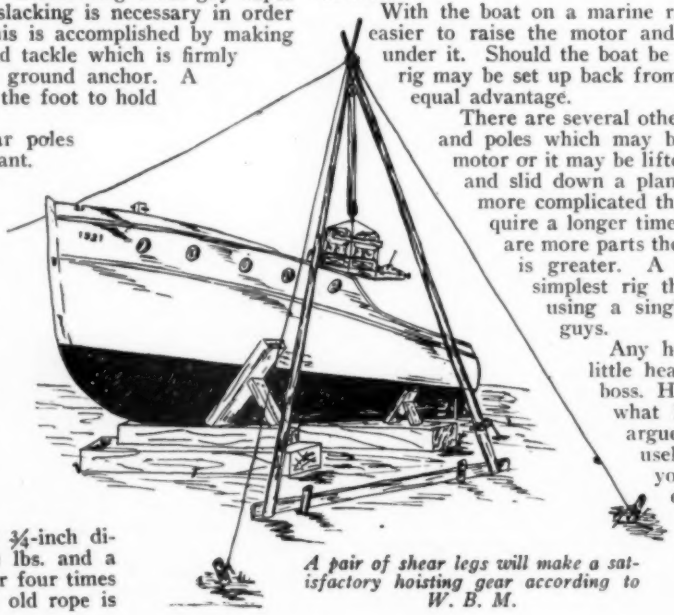
When the shears and tackle are ready, sling the motor, taking a turn around the hook with each part passing over it, which will prevent slipping and give additional strength to the sling. Should it be impossible to get a direct lift on the motor it may be held back by a light tackle made fast to the sampson post or through the ports. As the motor is raised, slack away until it hangs plumb, and raise just high enough to clear the coaming. Now head work is needed. The head guy must be slacked, and the back guys taken up until the motor can be lowered clear of the hull. The light tackle may again be useful in the same manner as before.

With the boat on a marine railway or rollers it is easier to raise the motor and draw the boat from under it. Should the boat be in the water the same rig may be set up back from the edge and used to equal advantage.

There are several other rigs of levers, ropes, and poles which may be used to remove the motor or it may be lifted by man power alone and slid down a plank. These rigs are all more complicated than the shear poles, require a longer time to erect, and as there are more parts the danger of an accident is greater. A good rigger uses the simplest rig that is practical; often using a single jin pole with four guys.

Any hoisting job requires a little head work and only one boss. He very likely will know what he is doing, so don't argue and waste time on useless discussions. Do your bit and do it right or as directed, and the job will be quickly done without accident.

W. B. M.,
Newburgh, N. Y.



A pair of shear legs will make a satisfactory hoisting gear according to W. B. M.

Complete Summary of Third Race for Fisher-Allison Trophy

Representing American Power-Boat Association Displacement Boat Championship, Buffalo N. Y., August 11, 12, 13, 1921, Three Heats of 50 Miles each. Open to Displacement Runabouts of over 32 feet in length powered with one or more Stock Marine Motors

TOTAL RACE 150 Miles		1st HEAT 50 Miles		2nd HEAT 50 Miles		3rd HEAT 50 Miles	
Winner	Best Lap	Winner	Best Lap	Winner	Best Lap	Winner	Best Lap
Rainbow	Orlo III	Orlo III	Orlo III	Rainbow	Adieu	Rainbow	Orlo III

BOAT	OWNER	MOTOR	1st HEAT—50 MILES			2nd HEAT—50 MILES			3rd HEAT—50 MILES			TOTAL RACE		
			Time	Speed	Best Lap	Time	Speed	Best Lap	Time	Speed	Best Lap	Total Points	Time	Speed
Rainbow	S. B. Eagan	Sterling	1-15-38	39.6	2:55	1-22-04	36.5	3:00	1-17-02	38.9	2:58	26	3-54-44	38.3
Miss Sterling	G. Clark	Sterling	1-18-00	38.4	3:03	1-23-51	35.8	3:06	1-17-16	38.8	3:03	23	3-59-07	37.6
Orlo III	Geo. Leary Sr.	2 M. & T.	1-15-27	39.8	2:53	1-49-07	27.5	3:21	D.N.F.		2:52	16		
Adieu	Webb Jay	Hall-Scott	1-39-25	30.1	2:57	D.N.F.		2:55	D.N.F.			6		
Aye Aye Sir	Carl G. Fisher	Allison	D.N.F.		3:30	1-34-23	31.8	3:31	1-27-52	34.2	3:26	0		
Orlo II	G. Leary, Jr.	2 Sterling	D.N.S.			D.N.S.						0		
Nick Nack	H. Birge	Hall-Scott	D.N.S.			D.N.S.						0		
Rainbow II	H. B. Greening	2 Sterling	D.N.F.			D.N.S.						0		
Miss Peerless	E. Grimm	Peerless	D.N.S.			D.N.S.						0		
Former Record	(Miami, 1921)		Adieu 1-18-01	38.4	3:06	Orlo II 1-17-35	38.8	3:00	Adieu 1-19-50	37.6	3:08		Adieu 3-59-19	37.5

Times Made In Laps—Two Miles Each

FIRST HEAT—August 11, 1921

Boat	Owner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rainbow	S. B. Eagan	3.19	3.12	3.08	3.06	3.02	3.02	3.03	3.04	3.01	3.04	3.00	2.55	3.05	3.01	2.58	2.56	2.59	2.58	2.57	2.58	2.57	2.58	2.57	2.55	3.01
Adieu	Webb Jay	25.03	3.01	2.57	3.10	3.01	3.01	3.00	3.03	3.03	3.03	3.04	3.04	3.05	3.06	3.03	3.06	4.06	3.07	3.12	3.06	3.06	3.13	3.08	3.10	3.26
Aye Aye Sir	Carl G. Fisher	3.47	3.33	3.34	3.36	3.36	4.33	3.34	3.30	3.35	3.47	3.52	3.37	3.35	3.33	3.40	3.33	3.32	3.34	3.37	3.31	3.36	3.35	3.46	4.06	*
Miss Sterling	Griffith Clark	3.18	3.08	3.11	3.08	3.07	3.09	3.09	3.08	3.07	3.07	3.07	3.07	3.09	3.06	3.05	3.05	3.06	3.04	3.07	3.08	3.07	3.05	3.05	3.04	3.03
Orlo III	Geo. Leary, Sr.	3.20	2.56	3.09	3.06	3.03	3.11	3.04	3.04	3.00	3.06	3.00	3.00	3.04	2.56	2.55	3.03	2.58	2.55	2.54	2.59	2.57	2.59	3.01	2.55	2.53
Nick Nack	Humphrey Birge	Did not start.																								
Miss Peerless II	E. L. Grimm	Did not start.																								
Rainbow II	H. B. Greening	Sunk lower turn 1st lap.																								
Orlo II	Geo. Leary, Jr.	Did not start.																								

SECOND HEAT—August 12, 1921

Boat	Owner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rainbow	S. B. Eagan	3.27	3.43	3.34	3.37	3.43	3.40	3.37	3.00	3.02	3.04	3.06	3.08	3.10	3.17	3.14	3.12	3.16	3.13	3.08	3.10	3.08	3.07	3.07	3.09	3.14
Adieu	Webb Jay	3.21	3.34	3.30	3.33	3.38	3.36	3.45	2.55	3.01	3.01	3.04	3.15	*												
Aye Aye Sir	Carl G. Fisher	4.10	4.07	4.12	4.16	4.14	4.18	3.32	3.36	3.38	3.39	3.42	3.42	3.41	3.42	3.58	3.31	3.33	3.25	3.38	3.37	3.35	3.37	3.38	3.35	3.35
Miss Sterling	Griffith Clark	3.48	3.40	3.41	3.45	3.49	3.51	3.26	3.07	3.10	3.13	3.10	3.11	3.12	3.13	3.14	3.13	3.46	3.06	3.06	3.09	3.12	3.14	3.14	3.10	3.11
Orlo III	Geo. Leary, Sr.	21.35	4.25	4.52	3.45	3.38	3.45	4.09	3.30	3.35	3.32	3.39	3.32	3.21	3.26	3.50	3.32	3.32	3.36	3.41	3.34	3.35	3.35	3.31	3.32	3.22

THIRD HEAT—August 13, 1921

Boat	Owner	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Rainbow	S. B. Eagan	3.08	3.00	3.00	2.59	2.58	2.59	3.05	2.59	3.02	3.11	3.10	3.10	3.10	3.10	3.10	3.07	3.08	3.10	3.07	3.02	3.03	3.01	3.02	3.04	3.07
Aye Aye Sir	Carl G. Fisher	3.39	3.29	3.82	3.29	3.26	3.37	3.36	3.32	3.28	3.30	3.29	3.29	3.31	3.30	3.34	3.29	3.28	3.30	3.36	3.28	3.32	3.33	3.28	3.28	3.30
Miss Sterling	Griffith Clark	3.15	3.08	3.06	3.10	3.08	3.07	3.03	3.04	3.04	3.07	3.09	3.06	3.06	3.04	3.03	3.03	3.07	3.03	3.02	3.04	3.03	3.04	3.03	3.03	3.04
Orlo III	Geo. Leary, Sr.	3.17	3.19	3.03	2.52	2.56	2.54	3.10	27.20	3.06	3.02	2.58	2.54	2.57	2.58	2.53	2.57	2.58	3.01	3.35	3.30	*				

*Accepted tow.

Rainbow Again Proves Her Supremacy

(*Continued from page* 16)

as designing such a boat as this presented a number of new problems for which there was no precedent from which to work, although George had some data on the Tunnel Stern model, 'Peter Pan,' that he tested in Washington Tank some years ago, and he had already proved mathematically the double bottom idea. Nevertheless there was a tremendous lot of work to be done and I do not think that anyone else could have handled it as well as Professor George, so that if any credit comes of the venture 'George did it.'"

Orlo III is a Sea Sled owned by George Leary of New York. Her power was two 300 horsepower Murray and Tregurtha motors. As far as the boat is concerned she was a great success as Orlo III broke all existing records and is no doubt the fastest boat that has ever ran on waters east of Detroit. But the engine installation in Orlo III discounted all her other good features and may have cost Mr. Leary the race. The entire engine installation and trials of this boat were made in less than seven days. The engine installation was started on a Saturday evening and by much overtime work the boat was launched on the Wednesday following. That left less than two full days to test out the new boat and engines as the boat had to be shipped from Mystic, Conn., on the following Saturday in order to reach Buffalo in time for the races. The result was as it always is—some detail, perhaps only trivial, was overlooked—but it was enough to cause Orlo III to take the count of ten.

While Orlo III did run she was about the prettiest thing afloat. There was no doubt about her speed especially on the straightaways which she covered at practically a mile a minute rate. Quite naturally Orlo III did not make as good work of the turns as some of the smaller craft but the course with its one buoy turns at each end was certainly not of the kind suited to boats of the Sea Sled variety. When Orlo III ran at this phenomenal speed the only motion to her was the forward one. There was no rock, roll or pitch. Waves or sea kicked up by the wind or the other contesting boats seemed to make absolutely no difference in Orlo III's time. She ran on an even keel at all times.

In the first 50 miles heat the starters were Rainbow I, Rainbow II, Adieu, Orlo III, Miss Sterling and Aye Aye Sir. Rainbow made the best getaway, closely followed by Miss Sterling and Orlo III. Adieu had trouble at the start and was some 20 minutes late in getting started.

It didn't take long to make it apparent that a great race was on. Miss Sterling soon passed by Rainbow I and then Orlo III went into the lead. Rainbow II remained astern of the jam at the start, negotiated the first turn at the upper end of the course in fine style and came down the river at express train speed close on the heels of the rest of the field. However, when she reached the lower turn her speed was greater than the strength of the planking could withstand and a big hole opened in her bow and she sank in a few moments time after her crew had made a buoy and line fast. Aye Aye Sir took a position astern of the field, where she remained for the three days but ran mile after mile with clock-like regularity. In fact, she did not open her engine hatch from the start of the first day's racing until she had finished the 150 miles at the end of the third day. Aye Aye Sir unfortunately ran out of gas on the 49th mile of the first heat and had to take a tow which automatically disqualified her for the entire race, although the Committee permitted her to compete on the other two days without receiving the customary points. This was done through the courtesy of the Race officials, as the crew of Aye Aye Sir wished to demonstrate that their craft would go through the three days racing without adjustment to the motor. Aye Aye Sir completed the 150 miles with a perfect score other than running out of gasoline during the first heat.

Orlo III held the lead in the first heat to the finish with Rainbow and Miss Sterling pushing her hard at all times. Orlo III was much faster on the straightaway than any of the other boats in the race but her turning was much slower, the difference being just about sufficient to make a good race.

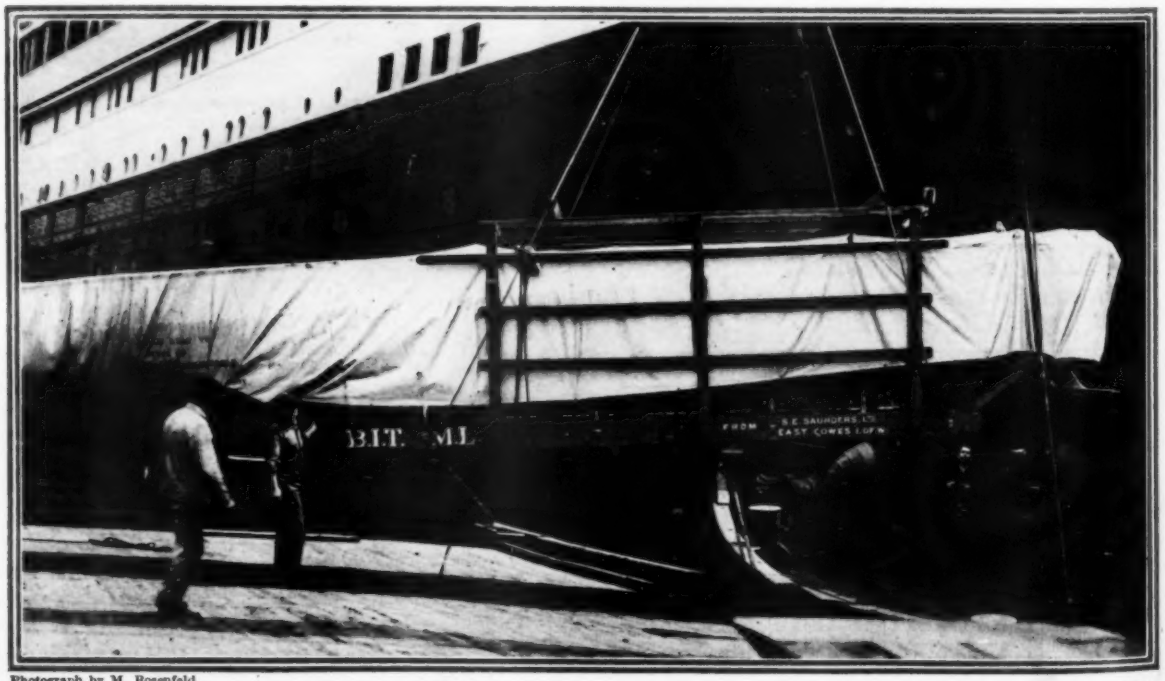
Adieu was fourth, coming in 21 minutes after Miss Sterling had finished. Her handicap at the start was too much for her to overcome and she took things rather easily.

In the second Adieu took the lead immediately and seemed to run away from the field easily but surely. At the end of the first 2 mile lap Adieu was 6 seconds ahead of Rainbow which was leading Miss Sterling by 21 seconds. Orlo III had engine trouble at the start. When Mr. Hickman who was driving her endeavored to start one of his motors he found that the starting battery for that motor was nearly exhausted and that there was not sufficient energy to turn it over. It took considerable time to connect the other battery, consequently Orlo III was 17 minutes late starting.

Adieu, running beautifully, led until the 25th mile had been passed when something went wrong with her power plant and she went down and out, accepted a tow and was officially declared out of the race. Rainbow took the lead and held it to the finish. Miss Sterling was a good second, Aye Aye Sir running unofficially came in third and Orlo III last.

The score now stood Rainbow 17, Orlo III 16, Sterling 15. It was still anybody's race. Interest in the third heat ran high.

(*Continued on page* 118)



Photograph by M. Rosenfeld

The British International Trophy Challenger, Maple Leaf VII, being unloaded from the decks of the S. S. Olympic which brought her over from England. Col. A. W. Tate, her driver, who accompanies the boat, admitted that "we are up against a tough proposition, but we will do the best we can"

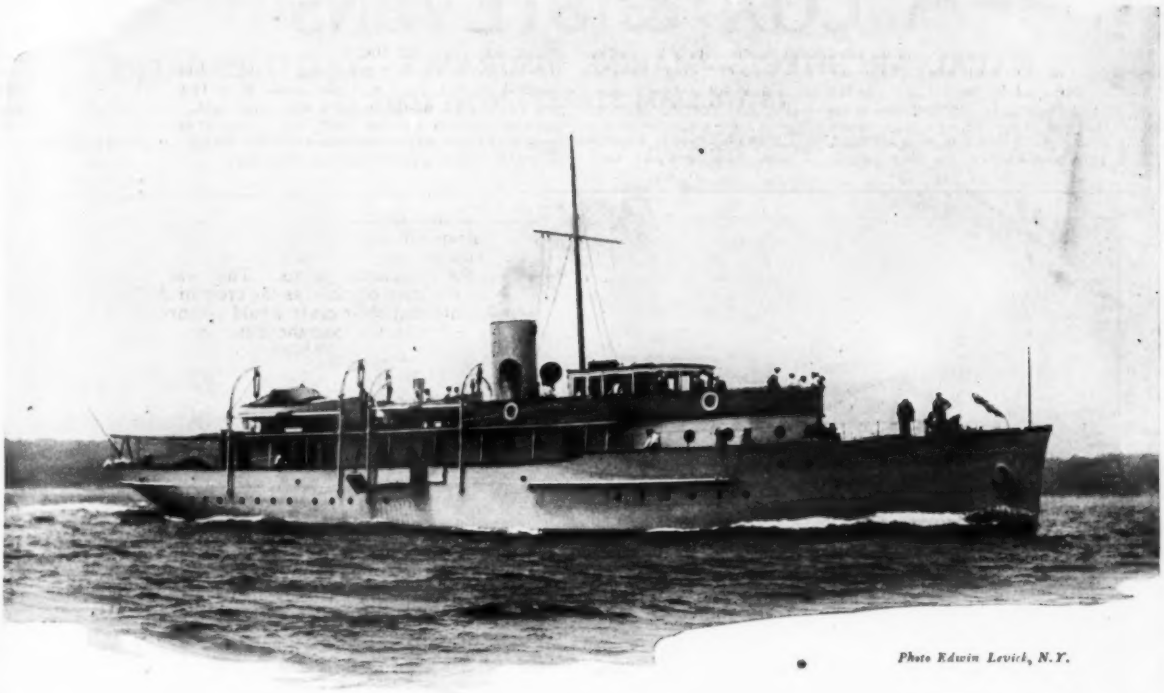


Photo Edwin Levick, N.Y.

Vincent Astor's *Nourmahal*

YOU'D expect the namesake and lineal successor of John Jacob Astor's famous yacht to be a marvel.

It is. With a cruising radius of 5000 nautical miles at 13 knots an hour, Vincent Astor's new steel yacht *Nourmahal*, built by Robert Jacob of City Island, is the largest Diesel-equipped pleasure vessel in the world. Its length over all is 160 feet 8 inches. There are seven staterooms, each with a private bath or lavatory. Crew quarters are ample. Dining saloon, music room, smoking room and lounge are exceptionally commodious.

Every possible refinement of design, structure and finish has been applied to make this craft the super-yacht she is. So it goes without saying that *Nourmahal* is—

Valsparred, of course!

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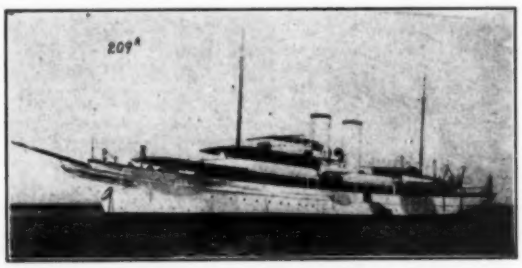
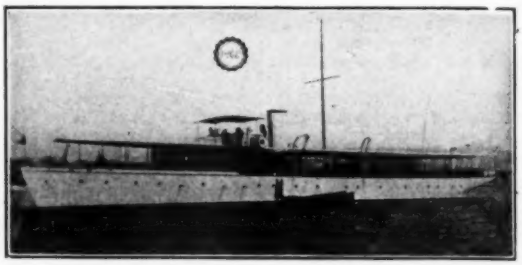
15 WILLIAM STREET, NEW YORK

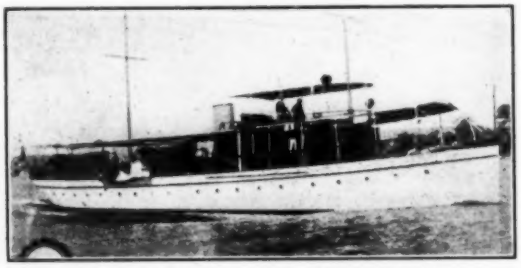
Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.



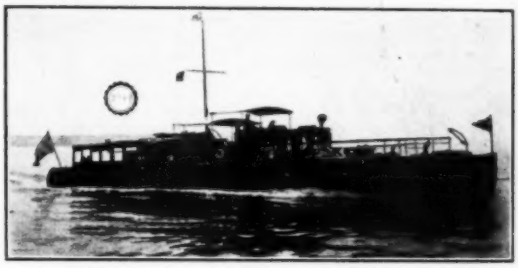
No. 209—For Sale or Charter—Large seagoing steam yacht. Exceptional speed. Roomy accommodation. Completely reconditioned recently. Unusual opportunity. Cox & Stevens, 15 William Street, New York.



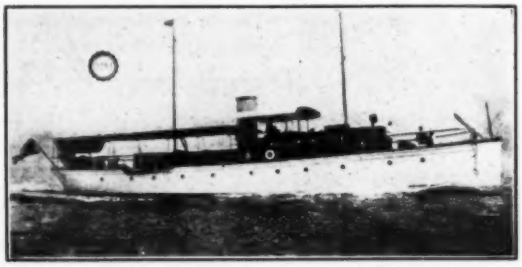
No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. Cox & Stevens, 15 William Street, New York.



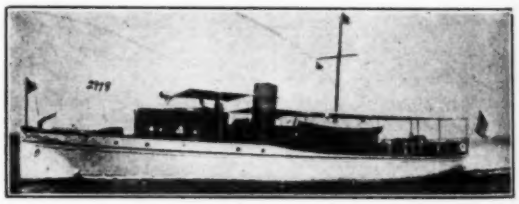
No. 1796—For Sale: Very roomy, twin-screw cruising power yacht, 99 x 17 x 4 ft. Speed 12 to 13 miles; air starting and reversing Standard motors. Large dining saloon, six staterooms, three bathrooms, all conveniences. Cox & Stevens, 15 William St., New York.



No. 3789—For Sale: Most desirable high speed twin-screw power yacht available. Approximately 88 ft. long. Speed up to 25 miles.. Double stateroom, main and dining saloons, bath and toilet room, etc. Large cockpit. Mahogany hull. Price attractive. Cox & Stevens, 15 William St., New York.



No. 3489—For Sale: Modern twin-screw power yacht, 90 x 16.3 x 5.2 ft. draught. Speed up to 15 miles; two 115 H.P. Winton motors. Dining saloon in deckhouse forward; two double and one single staterooms; bathroom and eta shret e eta shreta galley, etc. Unusually large deck space. Price and further particulars from Cox & Stevens, 15 William St., New York.



No. 2978—For Sale—Desirable twin-screw cruising power yacht; 80 x 14 x 4 ft. Speed 13 miles; two 50-60 H.P. Twentieth Century motors new 1919. Dining saloon, two double staterooms, bathroom and two toilets, galley, etc. Recently thoroughly overhauled at large expense. Cox & Stevens, 15 William Street, New York.

No. 3151—For Sale or Charter—Particularly desirable twin-screw houseboat; 77 x 17.6 x 3 ft. Speed 11 miles; two 6 cyl. 60-70 H.P. Standard motors new 1919. Large deckhouse containing social hall; main saloon, two double and two single staterooms, two bath and toilet rooms, etc. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.

No. 3477—For Sale—Fast bridge deck cruiser; 43 x 9 x 3.6 ft. Speed up to 17 miles; 130-150 H.P. 6 cyl. Speedway Motor. Saloon, double stateroom, two toilets, galley, etc. Splendid boat for ferry or day service. Price low. Cox & Stevens, 15 William Street, New York.

No. 2714—For Sale—Cruising power yacht; 62 x 11.6 x 3.9 ft. Speed 11 miles. 40-60 H.P. motor. Two saloons each with two berths. Double stateroom, bath and toilet room. Handsomely finished. Bargain for quick sale. Cox & Stevens, 15 William Street, New York.

Advertising Index will be found on page 126

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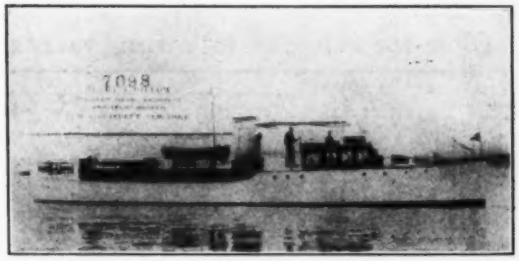
Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in our office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. We are in a position to submit full information on any type of boat upon request.

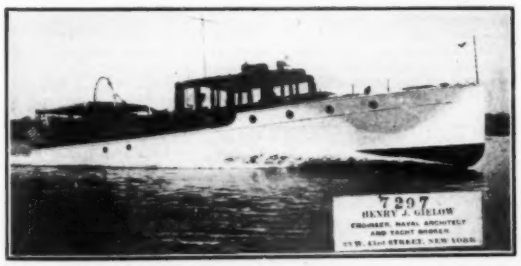
No. 8165—For Sale—Consider 50-60 ft. auxiliary part payment. New houseboat 45 x 13 x 3 ft. Speed 9 miles. In commission. Double and single stateroom, saloon and bath. Also deck saloon. Delco lighting plant. All complete and perfect condition. Henry J. Gielow, Inc., 25 W. 43rd Street, New York City.



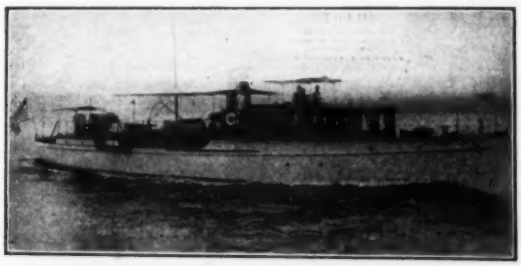
No. 7098—For Sale—Bargain modern 72 ft. Lawley built twin-screw motor yacht of recent build. Speed 12 to 14 knots; two 6 cyl. 150 H.P. Winton motors. Two double staterooms, bathroom and two toilets. Deck dining saloon. Owner anxious to sell. Henry J. Gielow, Inc., 25 W. 43rd Street, New York City.

No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley. 2 double, 3 single staterooms. Hot water heat, 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.

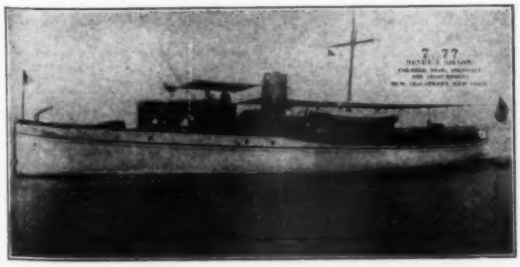
No. 7002—For Sale or Charter—Finest yacht of type available. 138 ft. twin-screw power yacht. Two 300 H.P. Standard engines. Dining room and social hall on deck; three double and one single staterooms; two bathrooms. All furnishings new 1920. Henry J Gielow, Inc., 25 W. 43rd St., New York City.



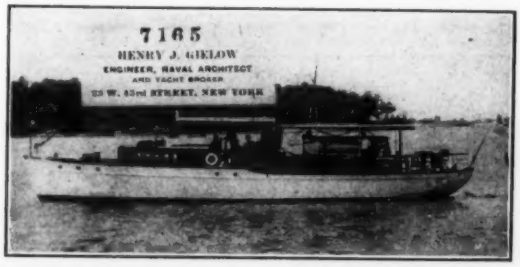
No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat through shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht. 15 ft. beam. Standard motors. Speed 11 miles. Deck dining saloon, 2 double staterooms. Accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7077—For Sale—Particularly desirable 80-foot twin-screw power yacht. "20th Century" 50-60 H.P. motors, new 1919. Deck dining room, two double staterooms, bathroom. All furnishings and equipment new 1919. Excellent condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7165—For Sale—Finest and roomiest 66' raised deck cruiser, two double staterooms, bathroom, large deck dining saloon, unusual amount of deck space, equipped with new 75 H.P. motor, interior finished in mahogny and cream. Excellent sea boat. Owner has purchased larger yacht, act quickly. Henry J. Gielow, Inc., 25 West 43rd Street, New York City.

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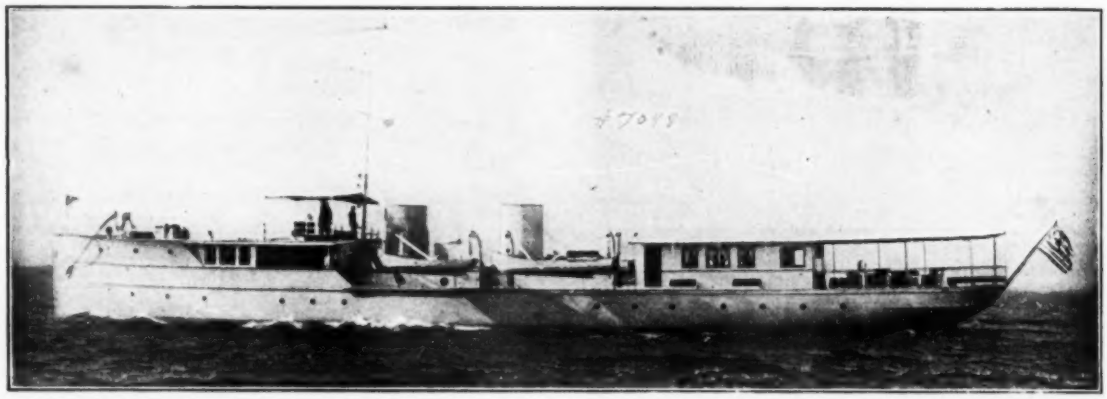
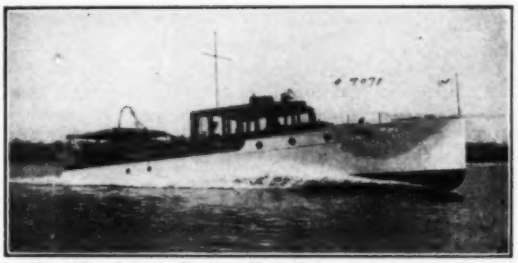
New York City

Offer for sale the following yachts, some of which are available for charter

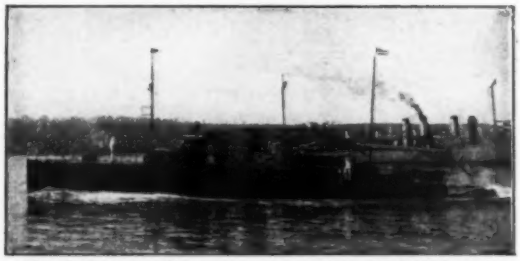


No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. draft. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder. Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.

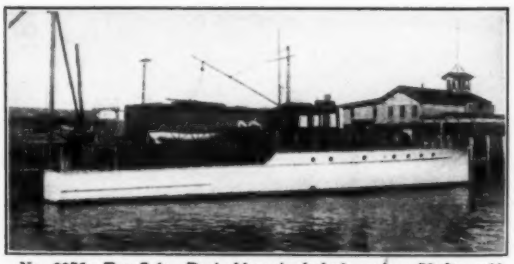
No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors. Speed 21½ miles. All modern conveniences.



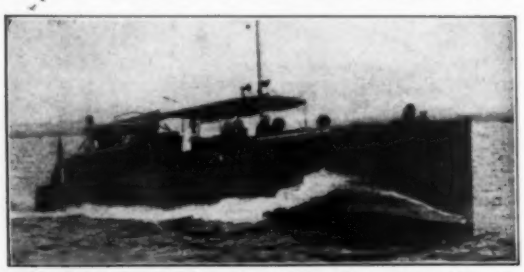
No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled last year in all departments.



No. 8102—Sale—Charter; most desirable raised deck cruiser available. Practically new. 81 ft. x 13 ft. x 5 ft. draft. Speed 15 miles. Electric light, hot water, heat and refrigerating plant.



No. 9075—For Sale—Desirable raised deck cruiser 70 ft. x 11 ft. x 4 ft. Good accommodations. Speed 23 miles.



No. 8978—For Sale—Raised deck semi day cruiser. 200 H.P. Sterling motor. Speed 20 miles per hour. In the very best of condition. Price reasonable. Full particulars and plans from Tams, Lemoine & Crane, 52 Pine Street, New York.

No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

Advertising Index will be found on page 126

EDWARD P. FARLEY CO.,

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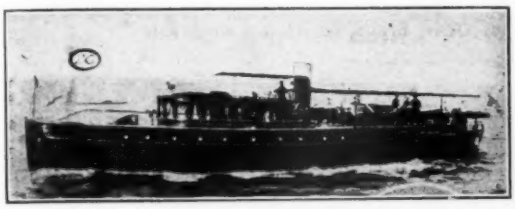
Naval Architects, Yacht Brokers, Surveying, Marine Insurance

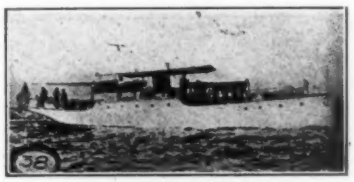
We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter

Plans, Photographs and full particulars furnished on request

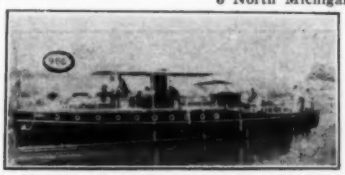


No. 26—For Sale—100 ft. twin-screw power yacht of recent construction and thoroughly modern in all details. Has exceptional accommodations consisting of three double and two single staterooms, dining saloon in deckhouse forward. An able and comfortable cruiser. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.

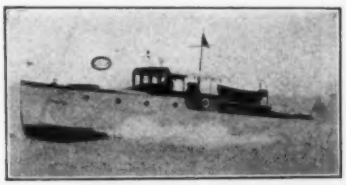
No. 573—For Sale—91 ft. x 14 ft. x 4 ft. 3 in. twin-screw gas yacht. Built 1917. Winton motors. Speed up to sixteen miles. Roomy accommodations with every convenience. In excellent condition. Equipment of the best. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.



No. 38—For Sale—78 ft. Lawley built cruiser. Winton motor. Two commodious double staterooms. Two toilets. Dining saloon in deckhouse forward. A very able and modern boat. Edward P. Farley Company, 6 North Michigan Avenue, Chicago, Ill.



No. 986—For Sale or Charter—1919 twin-screw cruiser. Houseboat type. 62 ft. x 15 ft. 4 in. x 2 ft. 6 in. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Constructed for use in northern and southern waters. Edward P. Farley Company, 6 North Michigan Avenue, Chicago, Ill.



No. 1018—For Sale—54 ft. twin-screw cruiser, express type. Speed 21-24 miles per hour. Two double staterooms, main saloon, two toilets, etc. Complete equipment. Edward P. Farley Company, 6 North Michigan Ave., Chicago, Ill.

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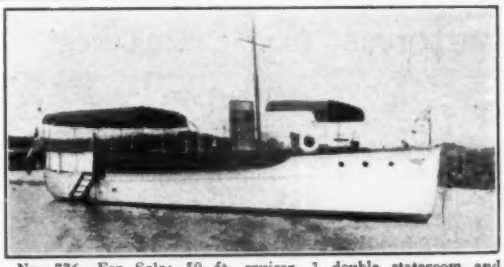
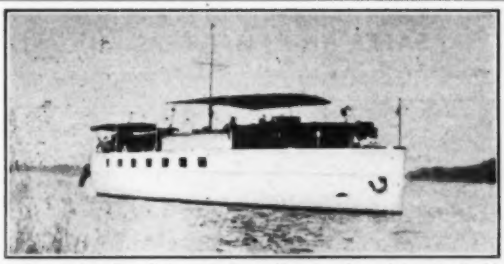
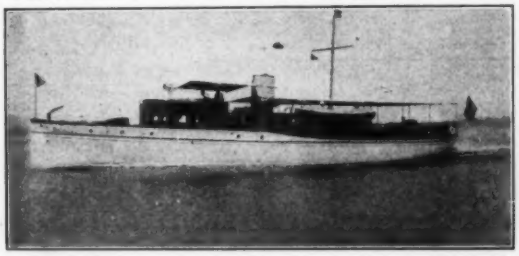


No. 776—For Sale: 50 ft. cruiser, 1 double stateroom and saloon. Speed 11 miles. New motor 1920. Good opportunity.



No. 1149—For Sale: 65 ft. twin-screw houseboat, 2 double staterooms and saloon, bath, etc. Best of construction.

No. 726—For Sale: 55 ft. Express cruiser, 1 double stateroom and saloon; speed 20 miles. Has had the best of care and considered one of the finest cruisers afloat. Price attractive. Further particulars from Harry W. Sanford, 501 5th Avenue, New York.



No. 1034—For Sale: Desirable 80 ft. twin-screw cruiser. Speed 14 miles. 2 double staterooms, dining saloon, bath, etc. A wonderful sea boat.

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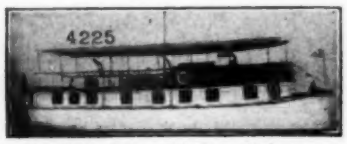
No. 2031—40 foot V-Bottom cruiser. Double stateroom, two upper and two lower berths in main cabin. 60-85 H.P. Sterling motor. Speed 12-15 knots.



No. 4225—Sale or Charter—51 foot power houseboat. Three staterooms, main saloon, toilet. 32-37 H.P. Standard motor. Speed 8 miles. Electric lights. Very comfortable boat.

No. 2011—52 foot bridge deck cruiser. Double stateroom, main cabin, two toilet rooms. Two berths and toilet for crew. 130-150 H.P. Speedway Motor. Speed 15 miles.

No. 4322—Sale or Charter—Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.

No. 1899—63 foot power yacht. One double and one single stateroom. Two Pullman berths in saloon. Toilet and bath. 70-90 H.P. Standard motor. Speed 15 miles. Electric lights, etc.

No. 2136—Sale or Charter—Twin-screw 80 foot power yacht. Two double staterooms, dining saloon, etc. Two 220 H.P. Standard motors. Speed up to 21 miles.

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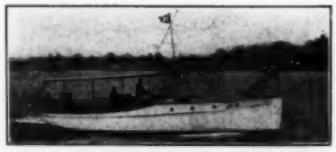
No. 1236—200 ft. steel sea going steam yacht. Best design and build. A-1 condition throughout. Oil burning. One of the finest vessels in the fleet. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.

No. 5186—Sale or Charter—85 ft. twin screw Express cruiser. Lawley Build. Practically new. Excellent accommodations. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

No. 1986—88 ft. power yacht. Twin screw. Good speed. Exceptional opportunity. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

No. 4084—For Sale or Charter—One of the Mathis 75 ft. power house yachts. Exceptional accommodations. Splendid motors. In commission. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York.

No. 1071—60 ft. express cruiser. V bottom. Twin screw. Speed up to 27 miles. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.



No. 6583—One of the Elco 45 ft. cruisers, in commission. Frank Bowne Jones, Yacht Agent, 25 Broadway, New York City.

Advertising Index will be found on page 126

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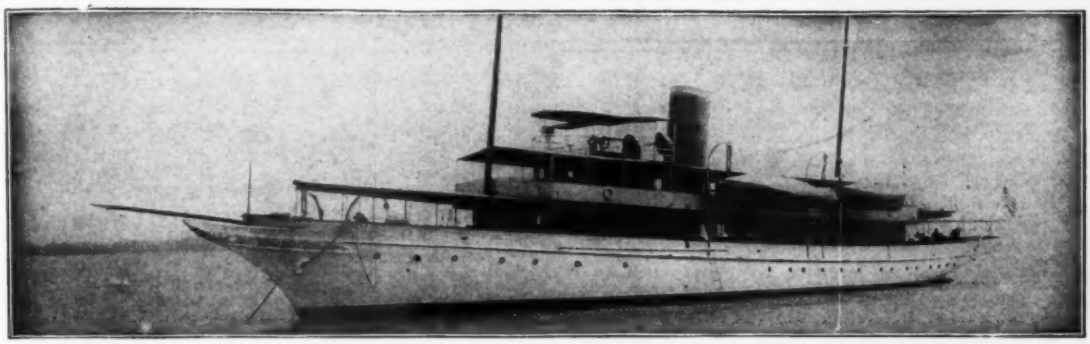
We have a complete list of Yachts of every description for sale and charter

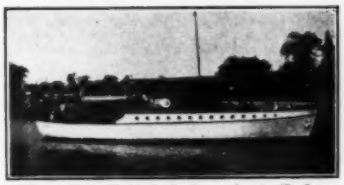
Plans, Photos and full particulars furnished on request.



No. 659—Steel steam yacht, deep sea type, 187 x 24 x 10 ft. Of best construction throughout, and of recent build from our designs. Promenade deck full width of boat. Has two large deck houses, with chart house and Captain's room on upper deck. Finely appointed owner's and guests' quarters. Was not used in Government Service. In best possible condition and should be seen to be fully appreciated. Inspection invited.

No. 2438—Handsome Express Cruiser, 87 x 12.2 ft.; mahogany planking; two 8 cylinder Speedway motors, speed 20-25 miles. Built under our supervision.

No. 25[illegible]—Patrol type. Twin-screw express cruiser, 60 x 10. Two 6 cylinder motors. Speed 25 knots. Very reasonable figure.



No. 1614—Raised deck cruiser, 57 ft. x 13 ft., Twentieth Century motor, 50 H.P. Three staterooms, saloon, etc. A1 condition.

Telephone Connection

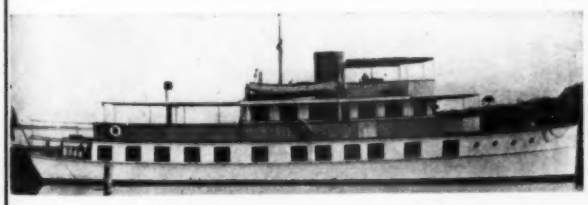
Suite 401

R. M. HADDOCK

Marine Insurance

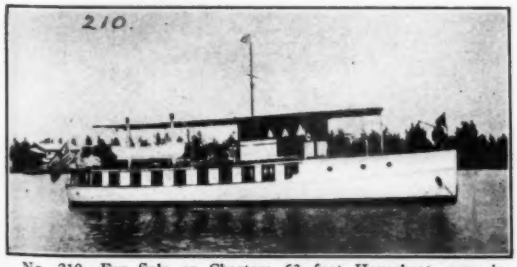
NAVAL ARCHITECT and YACHT BROKER

50 East 42nd Street, New York

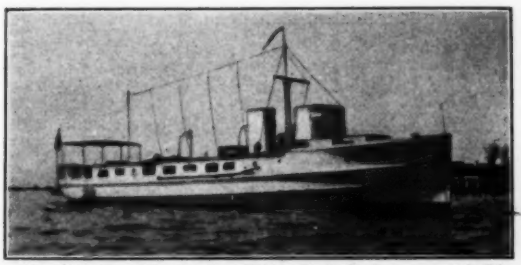


No. 215—For Sale or Charter: Attractive 98 foot Houseboat built in 1919 for Florida Waters where she is now located. Has four single and two double staterooms, bath, double deck saloon, etc. 125 H.P. Murray & Tregurtha engine. Economical on gas, nine miles on eight gallons. Apply for particulars to R. M. Haddock, 50 East 42nd St., New York City.

No. 238—For Sale: Attractive 77 foot Cruiser; suited for coastwise use. Very able boat. Built in 1915. Two 120 H.P. Sterling engines installed in 1920. Speed 20 M.P.H. R. M. Haddock, 50 East 42nd St., New York City.



No. 210—For Sale or Charter: 63 foot Houseboat, now in Florida Waters. 16 ft. beam, 3 ft. 6 in. draft. Two 50 H.P. 20th Century engines. One double and two single staterooms, bath, toilet, etc. Boat in fine condition. R. M. Haddock, 50 East 42nd St., New York City.



No. 316—For Sale: 59 foot Bridge Deck Cruiser, recent build. 70-90 H.P. Sterling engine 1917. A very able boat, economical to run. Price very reasonable. Apply R. M. Haddock, 50 East 42nd St., New York City.

THE MOTOR BOATING MARKET PLACE

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Cut one inch deep, one column wide..... $ 5
Cut 1½ inches deep, 1½ column wide..... $10
Cut 2¼ inches deep, three columns wide..... $20

Terms: Cash with order.

Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatinG.

SPECIAL NOTICE

To machinists, mechanics or anyone who can do their own overhauling.

Below are listed machines of some of the best known makes manufactured in this country.

They have not been rebuilt.

To the man who can do the necessary work on them we will sell them at bargain prices—at a small fraction of their original cost. In most cases the machines were running in boats until the day they were removed, so that we believe very little overhauling is necessary. This is an opportunity to get a good motor *cheap*. Write us for additional details on any motor that interests you.

250 H.P. Van Blerck, 12 cyl., 4 cycle, 5½ x 6, complete with two Bosch magnetos, two Schebler carburetors, reverse gear, etc., complete up to and including coupling.

Twin 200 H.P. each Sterling, 8 cyl., 5½ x 6¼, Model "F", with carburetors, coils, magnetos, electric self-starting outfits, reverse gears, etc., complete up to and including couplings.

Twin 162-215 H.P. each Van Blerck, Model "J", 8 cyl., 6 x 6, complete with electric starting and charging outfit, magnetos, carburetors, etc., complete up to and including couplings, practically brand new condition.

135-170 H.P. Van Blerck, 5½ x 6, Model "E-8", complete with electric starter and generator, carburetor, coil, magneto, reverse gear, etc., complete up to and including coupling.

90 H.P. Matheson, 4 cyl., 4 cycle, with carburetor, coil, spark plugs, splendid condition.

75 H.P. Craig, 800 R.P.M., 4 cyl., 4 cycle, 1500 lbs., 6½ x 7, with carburetor, coil, reverse gear, etc., complete up to and including coupling.

Twin 60-85 H.P. Murray & Tregurtha engines, 6 cyl., 6½ x 8, with carburetor, coils, high tension magnetos, reverse gear, etc., recently overhauled by makers.

65 H.P. Scripps, 6 cyl., 4 cycle, 5½ x 6, with carburetor, coil, spark plugs, Bosch magneto, reverse gear, etc., complete up to and including coupling.

60-70 H.P. Truscott, 6 cyl., 4 cycle, 7 x 9, overhead valve type, with carburetor, coil, high tension magneto, reverse gear, etc., complete up to and including coupling.

60 H.P. Loew Victor, 6 cyl., 4 cycle, 4¾ x 5½, with carburetor, coil, magneto, reverse gear, etc., complete up to and including the coupling.

60 H.P. Lamb, 6 cyl., 4 cycle, 6⅜ x 7, with carburetor, coil, magneto and reverse gear.

50-65 H.P. Hall, 4 cyl., 4 cycle, 7½ x 10, heavy duty, with carburetor, coil, magneto, reverse gear, etc., complete up to and including coupling.

Two 50 H.P. Hitchcock, 4 cyl., 4 cycle, with carburetor, coil, reverse gear.

50 H.P. Automatic, 4 cyl., 4 cycle, 7½ x 9, with carburetor, coil, magneto and reverse gear.

48 H.P. Barber, 6½ x 6½, complete with coil, carburetor, coupling, spark plugs.

45 H.P. Holmes, 4 cyl., 4 cycle, 6 x 8½, with carburetor, coil, Bosch dual magneto and reverse gear.

Twin 40-50 H.P. Knox, heavy duty, 4 cyl., 4 cycle, 7 x 8, with magnetos, coils, carburetors, reverse gears, etc., complete up to and including couplings.

40-50 H.P. Hall, 6 cyl., 4 cycle, 5½ x 6¼, carburetor, Bosch magneto, coil, reverse gear.

40-50 H.P. Anderson, 6 cyl., 4 cycle, 5 x 6, complete with carburetor, coil, spark plugs, magneto, rear starter, reverse gear, etc., complete up to and including coupling.

Twin 40 H.P. Lamb, Model "R", 6 cyl., 4 cycle, 5¼ x 6, weight 1650 lbs. each, complete with Bosch magnetos, coils, carburetors, reverse gears, etc., complete up to and including couplings.

Three 32-37 H.P. Standard, 4 cyl., 4 cycle, 6 x 8, carburetor, coil, magneto, reverse gear.

Two 30-40 H.P. Van Blerck, 4 cyl., 5½ x 6, with carburetor, coil, Bosch magneto, Paragon reverse gear, etc., complete up to and including coupling.

28 H.P. Murray & Tregurtha, 3 cyl., 4 cycle, 6½ x 8, with carburetor, coil, magneto, reverse gear.

BRUNS, KIMBALL & CO., 153-155-157-159 West 15th Street, New York City

40 MILES AN HOUR! 35-foot "V" bottom, mahogany runabout. Murray & Tregurtha six-cylinder complete outfit.
JAMES W. HUSSEY,
Greenpoint, N. Y.

KERMATH MOTORS—WE WILL TAKE ANY MOTOR IN TRADE ON A NEW KERMATH. GET OUR SECOND HAND LIST. KERMATH MFG. COMPANY. (Detroit, Mich.)

I have a few pair of Bausch & Lomb 6 x 30 power, prism binoculars and will sell them for about one-half of the regular price—this is a wonderful opportunity for yachtsmen to get a good pair of glasses. Percy M. Child, 1110-14th St., N.W., Washington, D. C.

For Sale: 1. 2KW Carlisle & Finch direct connected lighting plant, and 1, 5 KW Winton direct connected plant; also 1-18 in. and 1-14 in. Rushmore searchlight and one 9 in. all brass-stand deck type yacht searchlight, and a few 150 lb. mushroom anchor. Percy M. Child, 1110-14th St., N.W., Washington, D. C.

For Sale—Motor Power Tug, for house boats, length over all 40 ft. Beam over all 10 ft. 6 in. Depth amidships 5 ft. Buffalo engine. Speed 9 miles. In A1 condition, and in commission on St. Lawrence River. To be sold cheap. H. M., MoToR BoatinG.

For Sale—Yacht Celeritus, 61 ft. O. L. x 11 ft. 6 in. x 3 ft. 9 in. Designed by Swasey. Built by Jacobs 1916. Redesigned 1919. Motors overhauled 1920. Power plant, two Sterling eight cylinders 150/200 H.P. each. New power dinghy built 1920. Perfect order. Complete inventory. Price low. Apply Oliver, 417 Canal Street, New York.

For Sale—31 x 6 ft. Runabout, solid Mahogany trim, six cylinder Buffalo engine, electric lighting and starting system. Removable top and side curtains. Speed about 30 miles. Perfect condition. Looks like new. Just painted and completely overhauled and in water. This fine outfit complete for $3,000.00. Would cost fully twice that amount to duplicate. George A. Schmitt, 1118 Webster Bldg., Chicago, Ill.

One 4 cyl. 4 cycle Big Four tractor motor, 6½ x 8, 2,000 lbs. Governor control. Kerosene attachment. KW high tension magneto. Perfect condition. Price complete less reverse gear, $585.00. Would consider trade. 150 H.P. eight cyl. 4 cycle air cooled aeroplane motor, V type, 4¼ x 5. Weight 600 lbs. with two 8 ft. propellers, $285.00. Would consider trade. Our latest list—500 engines—marine, auto, tractor, aero, stationary types, just completed. Send for copy, it's free, and state your power requirements. We buy engines, and take them in trade on new or used standard makes. The Badger Motor Co., Milwaukee, Wis.

For Sale—Able deep sea cruiser, 43 ft. 0 in. x 10 ft. 6 in. x 3 ft. 6 in. Designed and built by Nock, 40 H.P. Sterling heavy duty motor. Speed eleven miles. Two cabins, sleeps six passengers. Berth for man in engine room. First class condition throughout. Full equipment for cruising. In commission at New Rochelle on Long Island Sound. For particulars address J. H. Wallace, 5 Beekman Street, New York.

For Sale—40 ft. 5 in. x 6 ft. 9 in. mahogany runabout "Chinook", speed 25 M.P.H. Equipped with six cylinder 5½ x 6 Van Blerck engine, electric starter, generator, electric lights, windshield, upholstered seats, top and curtains. Boat is in excellent condition and immediate shipment can be made to any point desired. Value $7,500.00; will sell for $5,000.00. Address Winton Engine Works, Cleveland, Ohio.

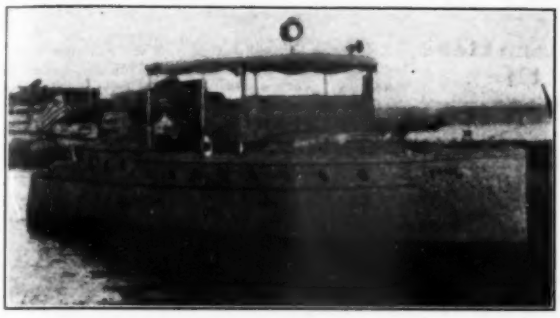
Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types $50 each and up. Special high tension 2 and 4 cylinder Magnetos $9.50 each. Electric and Gas Head Lamps—Coils—Carburetors — Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dep't. B, West End, Pittsburgh, Pa.

Real Bargains: 8-10 H.P. 2 cyl. 2 cycle Monarch $50.00, 18 H.P. 3 cyl. 2 cycle Rusky $80.00, 12 H.P. 2 cyl. 2 cycle Detroit $80.00, 3 H.P. Spaulding $35.00, 5 H.P. Ferman $40.00, 4 cyl. 4 cycle Buick $70.00, 4 H.P. Auto Marine $40.00, 60 H.P. 6 cyl. 4 cycle Lamb $1,200, 2 H.P. Sintz $35.00, 4 H.P. Palmer $40.00, 5-6 H.P. 1 cyl. 2 cycle Truscott $40.00, 15 H.P. 3 cyl. 2 cycle Vim $90.00, 15 H.P. 2 cyl. 4 cycle Leader $75.00, 7 H.P. 2 cyl. 2 cycle Eagle $75.00, 6 H.P. 2 cyl. 2 cycle Lockwood-Ash $65.00, 4 H. P. Graves $40.00, 4 H.P. Monarch $40.00, 4 cyl. 4 cycle Metz as is $35.00, 6 H.P. 2 cyl. 2 cycle Monarch $75.00, 24 H.P. 4 cyl. 2 cycle Waterman speed motor $200.00, 2 H.P. Sure Spark $30.00, 4 H.P. Sure Spark $40.00. Many others. Jesiek Boat Company, Grand Rapids, Michigan.

Rare bargain. Watercar "Slow Poke," fast, dry, safe, comfortable, ideal for ferry service and short cruises.

Special extremely low prices on 32 ft., high grade, up to the minute mahogany Express cruisers; hulls only or complete, with speeds and arrangements to meet owner's requirements. Bronx Boat Works, foot Willow Ave. (near E. 132nd St.).

Advertising Index will be found on page 126



FOR SALE—

YACHT "MANHATTAN"

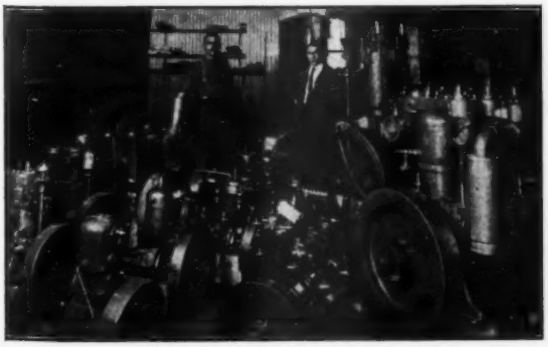
Formerly "Vision," built by the Albany Boat Corpn. in 1916. Length 45′, beam 9′, draft 3′; bridge deck cruiser with two fine beds in forward cabin, toilet and lavatory. Engine room under deck, entrance from either forward or aft cabin. Motor installed new, six cylinder, 5¾ x 7 Speedway, 150 h.p., self starter, etc., and lighting generator, new batteries, etc. Now has heavy 27″ wheel which holds motor down to 1000 rev. and speed about 18 miles. Motor has not run all told 48 hours since installed. Bridge deck enclosed with awnings and glass windshield. After cabin, two fine beds; all beds in both are box spring mattresses upholstered in frieze mohair plush. Upholstery goods alone cost over $400. After cabin also has galley on one side with 3 hole Red Star kerosene stove, ice box and sink on opposite side, sunken cockpit about 5′ or 6′ long with transom stern. Gasoline capacity 150 gallons, water capacity 60 gallons. V-bottom type; double plank mahogany hull throughout. Everything first class aboard.

Price, $8500.

Now in commission at Sheepshead Bay Yacht Club.

Inquire owner, W. C. Graves, 50 Church St., New York—Phone, Cortland 1643

For Sale—Bridge deck cruiser, V-bottom type 57 x 10 x 3.4, with 50 H.P. heavy duty Doman engine. Beautifully fitted up and completely equipped for long distance cruising. Ideal for Florida, being fitted with extra large tanks, refrigerator, galley, and full set screens. Has independent electric system, electric windlass and a lot of equipment not usually found in a boat of this size. Construction and condition first class. Immediate delivery. Very low price for quick sale. Apply to Rigg & Wetherill, Yacht Brokers, 1418 Walnut St., Philadelphia.



All Sizes Rebuilt Marine engines from one to 300 H.P. 4 cyl. 4 cycle GLOBE 10 x 14″, reverse gear, magneto, 48″ propeller, $6,000.00. Pair STANDARD 300 H.P. 12 x 14″ reversible, cost $25,000.00 each, price $4,000 each. Many other large and small four cycle and two cycle engines, for work boats, yacht, cruiser or tender. Write for list.

Hamilton Marine Engine Exchange 440 Fifty-Second St. Brooklyn, New York

FOR SALE

Twin Screw Cruising Motor Yacht Now in Commission

Length 70 Ft. Beam 12′-9″ Draft 4′-0″

OWNER BUILDING LARGER BOAT offers for sale the yacht RAMI, built this year by the J. M. Densmore Company and furnished by Irving & Casson.

This boat is unusually well equipped; built and finished in the finest possible manner and has been most satisfactory in operation.

Accommodations consist of two double staterooms and bathroom aft, engine room and galley amidships, saloon with two double berths and quarters for crew of four forward. The bridge deck is enclosed in glass.

Power plant consists of twin type GR 6-cylinder Sterling Motors with self starters. "Chadburns" telegraph on bridge and in engine room.

Electric equipment consists of 4 K W Electric Generating Set, 110 V and extra capacity Philadelphia "Locomotive type" GRID Batteries. Annunciator system, electric lights, fans and signals.

She has a mechanical refrigeration system with ice making section. Galley equipment includes hot water heater and alcohol stove.

Hot and cold water is fed by gravity to all fixtures.

Gasoline capacity, 900 gallons. Fresh water, 500 gallons. Speed 16½ knots at 1250 R. P. M.

An unusual opportunity is offered to secure for immediate delivery and ready for use a yacht in perfect condition, beautifully finished and furnished, a good sea boat, substantially built and containing the utmost in accommodations for her size.

Apply C. H. Sprague and Son, 141 Milk St., Boston 9, Mass.

THE MOTOR BOATING MARKET PLACE

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Terms: Cash with order.

Opportunities for the Motor Boatman

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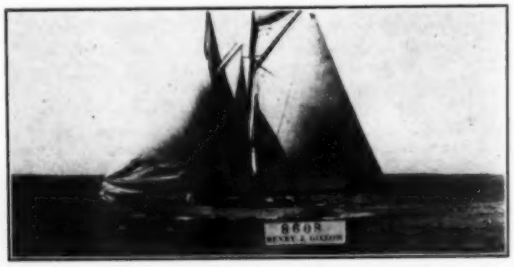
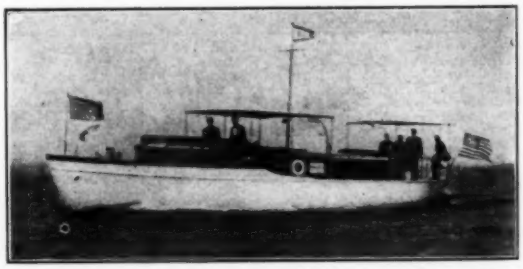
No. 7752. For Sale. One of the fastest 32 foot runabouts on Long Island Sound. Cruising Speed 30 Miles; Maximum 35 Miles. Six Cylinder 150 H.P. Van Blerck Engine; thoroughly overhauled 1921 and equipped with fuelizer. Built to Lawley's high standard of construction. All in excellent condition. Demonstration by appointment with

HENRY J. GIELOW, Inc.,
25 West 43rd Street, New York City, Tel. Murray Hill 9134.



No 8608—Bargain. Sale-Charter. Splendid steel auxiliary schooner for West Indies cruise. 118 x 79 x 22 x 12'6, 100 H.P. Standard motor, speed 7 knots, 4 large airy rooms, 2 baths, saloon. Hot water heat, teak launch, sailing life boat and dinghy. Fully found, all fine condition. All teak deck trim. Able offshore cruiser. H. J. Gielow, Inc., 25 W. 43d St., N. Y. City.



For Sale—Elco Bridge deck cruiser, 52 x 11.3 x 3.7 ft. Standard motor, accommodations for six, exceptionally well found, new Delco lighting system, everything in first class condition. Owner will accept reasonable offer. For further particulars apply RIGG & WETHERILL, Yacht Brokers, Bellevue Court Bldg., Philadelphia.

SEA SLED FOR SALE—We can offer a 40 ft. mahogany sea sled hull from which we have removed two 8 cylinder motors. Has cabin with lavatory, washroom, ice box, buffet and two berths. Entirely refinished and ready for new power plants. Belle Isle Boat & Engine Co., 9662 E. Jefferson Avenue, Detroit, Michigan.

TRIMOUNT WHISTLE BLOWER OUTFITS
Blower runs by friction contact with engine flywheel. Whistle of brass, nickel-plated.
Made in 3 sizes.

TRIMOUNT ROTARY HAND BILGE PUMPS
All bronze composition. Suction lift 6 to 20 feet. A lifelong convenience.
Made in 3 sizes.

TRIMOUNT ROTARY POWER CO.
20 Heath Street Boston, Mass.
(Factory: 292 Whiting Ave., E. Dedham, Mass.)

Roberts-Buick 20 ft. Standardized runabouts, guaranteed speed 28 miles per hour, for immediate delivery. Harry Roberts, 275 Connecticut Boulevard, E. Hartford, Conn.

FREE Illustrated Literatures. Outboards, New and Rebuilt Engines. Universal Joints, Pumps, Clutches, Gears, Aerials, Hyde's, Gordon Reversible Propellers, etc. Canadian Boat & Engine Exchange, Toronto.

FOR SALE—150 H.P. 5.1 inch bore, 5.5 inch stroke, six cylinder, four cycle Wisconsin Marine Motor. Never been used. Box 29, MoToR BoatinG.

For Sale—Speed boat, 25 miles an hour. 30 H.P. engine Loew-Victor. Dentis, 42 Madison Ave., New York City.

Tunnel Stern heavy construction steel open boat 24 ft. x 7 ft. x 1½ ft., 10 H.P. Frisbie engine, new this season. Built for salt water. Ideal for work boat or any heavy duty. Cost $1500.00, will take $800.00.

16 ft. Mullins outboard special steel boat with 2 H.P. Caille Liberty drive detachable motor outfit, cost $200.00, used a few times, sell boat or engine for $50.00 each.

One K. W. Dyneto Co. Generator, belt drive with switchboard, automatic cutout, Rheostat, etc. Complete cost $175.00, sell for $75.00, never used. W. B. Smithers, 257 North Broad St., Philadelphia, Pa.

For Sale—Two cylinder, 36 H.P., two cycle Kahlenberg engine. A-1 condition. Complete with spare parts, clutch, shaft, stuffing box, propeller. Box 91, MoToR BoatinG.

Advertising Index will be found on page 126

NAVAL ARCHITECTS & YACHT BROKERS

JOHN G. ALDEN
YACHT BROKER AND NAVAL ARCHITECT
MARINE INSURANCE
148 State Street
BOSTON, MASS.

Thomas D. Bowes, M. E.
NAVAL ARCHITECT AND ENGINEER
Offices:
Lafayette Bldg., Chestnut and Fifth Sts.
PHILADELPHIA, PA.

COX & STEVENS
Engineers and Naval Architects
Yacht Brokers
15 WILLIAM STREET, NEW YORK CITY
TELEPHONE 1375 BROAD

William H. Hand, Jr.
NAVAL ARCHITECT
NEW BEDFORD, MASS.
HAND-V-BOTTOM DESIGNS
Send stamp for catalog illustrating forty-three typical Hand-V-Bottom designs.

R. M. HADDOCK
NAVAL ARCHITECT
Sail or Power Yachts, Houseboats and Commercial Vessels
Yacht Broker Sales and Chartering
50 East 42nd St. New York City

FREDERICK K. LORD
NAVAL ARCHITECT
120 BROADWAY NEW YORK

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Telephone Main 3352
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2 Stone Street
Telephone
Bowling Green 6077
N. E. McCLELLAND & CO., Ltd.
NAVAL ARCHITECTS
SURVEYORS — YACHT BROKERS

CHARLES D. MOWER
Designer of
SENSIBLE CRUISERS
POWER—SAIL—AUXILIARY
Twenty-five years' practical experience
350 Madison Avenue New York City

Water-tight Reverse Lever Installation

(*Continued from page* 42)

casting afterwards bent, drilled, and a length of one inch brass shafting riveted in. This built-up handle was secured to the steel rod by means of a nut holding it up against the shoulder. When under way, only this handle was in sight and no long lever projected down through the floor; the only objection being that occasionally a lady passenger would mistake it for the handle of the companionway door and throw out the clutch in trying to open the door to go below. To prevent damage through slamming the clutch in hard, a heavy collar cut from a piece of steam hose was placed on the outer end of the rod, against the handle, to act as a bumper.

An offset rod as shown here would not always be necessary; the cabin might be low enough to allow a direct connection. In this case the tank of a mechanical oiler on the side of the engine had to be cleared and made the offset necessary in any event.

H. H. P., Oakland, Cal.

Reverse Lever for Water-tight Cockpit

THE arrangement of installing the reverse lever illustrated in the drawing is one that is very popular in our present day cruisers and lends itself to water-tightness very readily. The handle, as shown in the sketch, is of the drop variety and is raised to the horizontal position while being operated, folding down out of the way when not in use. It is connected to a vertical shaft which turns in a common bearing bracket mounted on the cabin bulkhead and runs through the cockpit floor upon which is mounted a light pattern stern stiffing box.

The lower lever and connecting link in design are self explanatory in the sketch and are usually made of ⅜ by 2-inch strap iron. The connecting link being twisted as shown and jaw-pieces riveted on to take the lower lever and reverse lever. The lengths of the various parts of course will vary with different installations and no dimensions can be given here, but the design will work for installations where the reverse gear is in cabin or under cockpit floor by running the connecting link in the required direction.

Where complete water-tightness is not essential, as in cases where a very slight leakage would merely drip into the bilge, the stuffing box can be omitted and a hole merely drilled through the cockpit floor of the same diameter as the vertical shaft. This will leak but slightly and will be all that is necessary in most cases. Where absolute tightness is required, however, the stuffing box should be bolted to floor with a canvas gasket soaked in heavy paint under it. The pins connecting the levers and link should have split pins inserted to prevent unshipping.

I have also seen installations where the vertical shaft was not desired in the cockpit and was run through the deck of the cabin and down on the inside of the bulkhead. In this case the stuffing box is mounted on the cabin top, and the bearing bracket is on the lower end, the rest of the outfit being the same as shown.

W. E. M., Philadelphia, Pa.

Yard & Shop

G. W. Vaughan Leaves Van Blerck

Guy W. Vaughan, who has been Vice-president and General Manager for the Van Blerck Motor Company, for the past two years, has resigned as General Manager, but still remains as Vice-president and a member of the Board of Directors. He has become the Vice-president and General Manager of the Standard Steel and Bearings Company, of Philadelphia, the largest independent manufacturer of ball bearings in the country.

FREDERIC S. NOCK
NAVAL ARCHITECT
Yacht Builder, Marine Railways, Storage and Repairs
East Greenwich, Rhode Island, U. S. A.

What do you want—What have you?
C. S. SPONAGLE
Yacht Brokerage and Insurance
Commercial Boats
Competent Crews Furnished
88 Broad Street Boston, Mass.

110-Ft. Yacht "CONSUELO"
Sixteen Years
Designing Experience
Specialty
Seagoing Yachts
J. MURRAY WATTS, N. A.
136 South Fourth St. Philadelphia
Phone: Lombard 2072

Keep Your Battery Charged

William J. Deed, the Naval Architect who is designing the present series of popular motor boats for MoToR BoatinG, announces the arrival of Richard Norton Deed on August 3rd. MoToR BoatinG extends its best wishes to the future naval architect.

A New Deed

The many auxiliary devices attached to the storage batteries today have a tendency to discharge them very quickly at times. A little device called the Homcharger is being manufactured by the Automatic Electrical Devices Company, 120 3rd St., Cincinnati, O., to enable the user to recharge his batteries at home. Any alternating current socket furnishes the supply for the device. A six or twelve volt battery can be charged over night at a trifling cost. Catalogue 4228 will be sent to interested readers on request.

whereas I can get 24-hour shipment from towns all over the country it is a very seri-
done something to inspire, and if you
ities available. Increased space in the fac-

Commodore Chairs Are Popular

The demand for the folding Commodore Chair, the manufacturer of which has just been begun by the Albany Boat Corporation, has exceeded all expectations. This chair, which folds up into a very compact unit, was only announced recently and the floor of others which followed completely swamped the facilities available. Increased space in the f-ca tory has enabled them to overtake the demand and deliveries are now being promptly made. The possibilities of this chair are unlimited. Its use is not confined to boats alone. It will make a serviceable article of furniture for country clubs, summer hotels, boarding houses, and the individual porch.

Hippocampus Arrives At Havana

(*Continued from page* 12)

Al had the watch when at three-thirty he called down the hatch, "Oh, boys, the Eagle has let go a rocket." Sleepy as Paul and I were we knew what that meant, and we clambered regretfully to the topside ready to cast off our towline and hoist sail. Megaphoned orders came almost immediately from the tug, and in a few minutes we were on our way again. But Sombrero Key was nearly abeam, the worse of the current was behind us, and, what was more to the point, a fair breeze from the northeast had come to our relief.

Until two hours after daylight the wind held and we kept abreast of the tug, laboriously towing the Eagle boat, but then we fell astern and in time found it expedient to start the motor and speed our slow progress. We caught up with the naval vessels again as they entered Key West, and, politely standing by to give them access to the old submarine basin, followed them in and made fast to a wharf.

A colored policeman promptly informed us that it was customary to secure permission before entering the Navy Yard, but on Al's hopeful assurance that permission would soon be forthcoming we were allowed to remain where we were. Al, who knows the yard and some of its personnel from wartime days, scouted around and in short order we were invited by the Commandant himself to select our berth and stay as long as we liked. Hence, we naturally gravitated to the side of a submarine chaser—the 190—and there made ourselves comfortable.

Our four days in Key West were compounded of heat, thunder storms, and Navy hospitality. We were invited to supper one evening in the wardroom of Eagle 39, where we ate good food and swapped experiences, and by the yard officials we were tendered the privilege of buying stores and gasoline at cost prices. A representative of the press visited us aboard and was responsible in the *Key West Citizen* for the startling news that one of our crew, Paul Squibb, would reenlist in the Navy following his cruise in Hippocampus. This was good journalism, being true except in the minor particular that the one of us who did improve his stay at Key West by reenrolling in the Reserve was one Lieut. (j.g.) J. A. Chambers. Paul, who served in the artillery, still stands by his guns.

Pleasant and profitable though our stay was in the southernmost and least American city of the United States, the terrific heat would have driven us away quickly if heat alone could have filled our sails. Finally, on Sunday, June 26th, we awoke to a breeze that promised business, and with our goodbyes and thanks expressed. we were soon underway and headed for Sand Key via the Rock Key Channel. Watching the color of the water to get a foretaste of the eyesight navigation that awaits us, we threaded our way around and over a coral reef or two, and in two hours were in the Gulf Stream, southward bound for Havana.

We feel a little proud of the landfall we made in entering our first foreign port. The currents in the turbulent ninety miles of blue water separating the island republic of Cuba from her godparent are numerous and swift, and it is not unusual for vessels with greater speed and better navigational equipment than ours to err a matter of five or ten miles in sighting Morro Castle. Yet we, aided by luck and current information gained at Key West, ran our courses for eighteen hours and in the nineteenth found ourselves in danger of being run down by the Key West-Havana ferry Parrott, so closely did her course parallel our own. Daylight came before we sighted Morro Castle Light, but in another six hours we sidled under her ancient walls, buffeted by flaws of wind from the east.

Presenting to the medical officer the clean bill of health which we had obtained from the Cuban consul at Key West, we were informed that we were free to land and make ourselves at home, but that since we had not been fumigated we must anchor in the bay. So we cast off from the port officer's dock, passed over the historic spot where the U. S. S. Maine was sunk, and after some searching for a likely anchorage, let go near the utilitarian but picturesque Machina dock.

It is now time for me to ask the reader to guess what we did immediately after setting foot on foreign soil for the first time in many, many months. Perhaps, though, I should save him the trouble of guessing.

We first telephoned to some friends of Chambers' and then inquired our way to the Post Office, a huge building converted from an historic Catholic church. Then, finding that for the first time in the course of our travels, we were ahead of the mail, we walked to O'Reilly Street, named for a Cuban patriot, and in an American shop left some films for development. Dodging the terrible Fordingoes (as Cubans term the familiar Ford, which, all decked out in gorgeous upholstery taxies in great numbers along Havana's congested thoroughfares) we next strolled about looking for a restaurant. When we had found one that seemed commensurate both with our fastidiousness and the opulence of our pocketbooks, we entered, sat down before a clean white table cloth, and ordered a meal which included Spanish omelette and an ice cream flavored with the delicious Tropical fruit *mamey*. All of this, which is long-winded in the telling, but was longer in the happening, we did before—

We ordered a round of *daiquiris*.

A *daiquiri*, be it known, comes to the table in a cool, dewy glass of the type used at home in the ancient, unregenerate by-day of the cocktail. In color it may be a delicate shade of green or it may be the hue of claret. But it contains no such vinous admixture, being composed of lime, sugar, and the finest Bacardi rum. It was my treat, in expiation of an old sin of making an atrocious landfall at Charleston, S. C., and we drank to happy days. Were I a doctor I would universally prescribe *daiquiris* for parched throats and arid dispositions.

Feeling much refreshed by the *mamey* ice cream, we returned aboard to make up arrears in correspondence, and in the evening dragged aching feet, unused to the confinement of shoe leather, down Havana's famous Prado to the Malecon. There on the sea wall we watched the slowly revolving beam of the O'Donnell (another Cuban patriot, that) lighthouse on Morro Castle, or looked westward over the smooth, silent sea which we are to traverse in rounding the western end of Cuba.

The next day as guests of an hospitable American resident in Havana we motored to the Playa Marianao, where, near the anchored fleet of the flourishing Havana Yacht Club, we swam without fear of molestation by the sharks, and between dips more firmly cemented our friendship with Bacardi. Chambers, glancing over the sonder boats hauled out or anchored off the yacht club's wharf, saw something familiar in their lines and later learned that among them are the old Marblehead racers Sprig, Ellen, Vim and Harpoon. After dark we played hosts aboard, Paul serving a delectable supper of fried bananas and frankfurters, washed down by temperance draughts of the juice of limes from the Matheson groves.

And now, having viewed the more accessible sights of Havana and employed the better part of another day securing the health papers necessary for clearance, we are ready to penetrate still farther into the unknown. We would stay longer in the picturesque capital exploring its fortresses, admiring its parks and the shrub-embroidered streets of its suburbs, and basking in the quaint beauty of its narrow streets and sun-baked buildings. But the West Indies lie before us, and Panama is a long six-hundred-mile jump from Jamaica. Moreover, the "July-Stand-by" season of the hurricane is upon us, and there is a certain need for haste. So tomorrow, with the first daily breath of the northeast trades, we are off for the Isle of Pines.

Sea Gull—A 41-Foot Auxiliary

(*Continued from page* 39)

bolts riveted. In sides to be fitted ¼ inch plate glass lights set in rabbetted opening and secured by quarter-round and six 8 inch hinged bronze ports. At top and bottom ⅜ inch oak finish pieces to be fitted. At top 1 inch oak half-round to be fastened. Trunk side to be set on layer of white lead and strip of cotton in rabbetted sill and every care taken to make a watertight job.

Cockpit: Floor beams to be 1⅜ inches by 2¼ inches crowned 1½ inches, spaced as per plan. Floor to be 1¼ inch white pine with seams caulked and filled flush with marine glue and planed and sanded to smooth surface and finished bright. Bridge deck and aft deck same finish. Coaming to be 1 inch oak with 1¼ inch by 2½ inch cap. Seats in cockpit to have 1½ by 1½ inch oak framing, ⅞ inch pine top, ⅜ inch tongued, grooved and V-d oak staving with ⅜ inch finish pieces top and bottom. Aft side of the bridge deck to be ⅞ inch t, g, and V-d oak.

Cabin Floor: Beams to be 1⅜ inches by 2¼ inches oak or yellow pine with ⅞ inch white pine flooring, center boards for width of 2 feet to be left loose.

Flush Hatches: To be same construction as surrounding floor or deck and to be brass bound and fitted with brass flush ring. Hatch framing to bear on deck framing.

Engine Beds: To be as required for the particular motor installed. Engine bed logs fore and aft to be 4 inch oak with 4 inch oak floor timbers secured by 1¼ inch galvanized bolts. Bed

(*Continued on page* 60)

SPEED AND EFFICIENCY INCREASED

"Doughboy"—Designed and built by Hacker Boat Co. 35' x 6'6", Six Cylinder, 200 H.P. Hall-Scott Marine Engine. Speed 37 miles per hour

Runabouts of both the VEE and Round Bottom Types have been improved immensely by replacing old type and heavier engines with four and six cylinder Hall-Scott Marine Motors.

DOUGHBOY formerly had a six cylinder, 5½ inch bore, 1700 lb. engine, and a speed of 32.6 M.P.H.

BRUSH BY had a four cylinder, 5½ inch bore engine, and a speed of only 32 M.P.H.

WITH SIX CYLINDER HALL-SCOTTS INSTALLED:

DOUGHBOY'S speed was increased 13½%, reliability at least 90%—gasoline consumption reduced 20%—boat made more buoyant, seaworthy and drier with lighter weight motor.

BRUSH BY'S speed was increased 31%, reliability at least 90% and vibration eliminated.

Hall-Scotts are making good in both runabouts and fast cruisers because we have an organization and factory capable of producing Better Marine Engines,—better in design, materials and workmanship.

Let us tell you what our motors will do for you

4 Cylinder, 125 H. P., Weight 1100 lbs. **6 Cylinder, 200 H. P., Weight 1300 lbs.**

Single and Twin Screw Plants in stock at

HALL-SCOTT MOTOR CAR CO., Inc.

Eastern Sales and Service Branch **266 Main St., Buffalo, N. Y.**

FACTORY: BERKELEY. CALIFORNIA

"Brush By"—A Cinderella Type, designed by Geo. F. Crouch, and built by Reliance Motor Boat Co. Owner Jos. P. Sullivan, Thousand Island Park, N. Y. 26' x 5'3"—Six Cylinder, 200 H.P. Hall-Scott Marine Engine. Speed 42 miles per hour. Fastest single-marine-engined displacement boat in the world. Winner of her class at Thousand Islands and Buffalo races. Holder of official A.P.B.A. record of 38.1 miles per hour for 20 miles

Designed and made by J. E. Caldwell & Co.

Pieces for Competition
or
Presentation

The attention of clubs and committees is invited to our stocks of loving cups, vases, tankards, and prize trophies of all kinds in precious metals, silver plate, copper and bronze.

Special Pieces
Designed and Made
to Order

Designers and Makers of The Carl Fisher Gold Cup
The Wood-Fisher Gold Trophy

J. E. Caldwell & Co.
Jewelers—Silversmiths—Stationers
Philadelphia

Sea Gull—A 41-foot Auxiliary

(*Continued from page* 58)

logs molded not lower than top of frames.

Bitts: On aft deck two 5 inch by 5 inch white oak bitts to be carefully fitted through oak blocks between deck beams and fitted with ⅜ inch bronze pin near head. Heels of bitts to be well fitted in hole in oak block.

Hatches, Skylight and Companionway: To be built of oak as per plan with 1¼ inch coamings, slides or covers, skylight glazed with ¼ inch wired glass protected by brass rods, companionway door to be fitted with bronze mortise lock set.

Cabin Joinerwork: Ceiling to be ⅜ inch tongued, grooved and V-d cypress. Transoms to be same construction as cockpit seats except two transoms to be extension type and fitted with drawers under. Bulkheads to be ⅞ inch white pine. Bulkheads in toilet room to be V-d on outer side only and on smooth inner side of bulkhead it is to be gouged to imitate tiling when finished in white enamel. Joiner work to be of oak or mahogany to be finished white enamel with oak or mahogany trim; all work which is to be paint finish to be pine, all natural finish to be oak or mahogany.

Plumbing: Pump water closet to be installed in toilet room, 15-in. vitro-adamant lavatory with basin pump connected by ½ inch galvanized iron pipe to fresh water tanks to be installed in same. White enameled medicine locker to be fitted. Two 60 inch by 16 inch 50-gallon fresh water tanks to be properly installed under cockpit floor with vent, drain, filler pipe threaded into tank and into deck plate and one swash bulkhead. Enameled iron sink 12 inches by 18 inches with galley pump to be installed in galley and connected with fresh water tanks. Both tanks to have common supply pipe.

Refrigerator: To be constructed of ⅞ inch Balsa wood inside and oak outside ⅞ inch thick with 1 inch air space between. Ice space to have door and pan to be drained overboard. Food space to have removable grating shelves. Interior finished white enamel. Food space to have door.

Bilge Pump: On cabin bulkhead to be mounted 25-gallon capacity rotary bilge pump connected with both sides of bilge.

Steering Gear: Rudder to be white oak 2¼ inches at stock tapered to 1¼ inches at edge. Stock to be 2½ inch brass pipe fastened to rudder blade, set in brass reinforced socket passed through brass pipe screwed into horn timber and below horn timber set in grooved rudder post sided 3 inches. At deck No. 6 Edson steerer to be fitted.

Sails, Spars, and Rigging: Sails to be No. 9 cotton duck, crosscut, laced to spars and provided with 12 ounce khaki covers. All sails to have reinforcing at corners, reefs, etc., and to be made in accordance with best practice. All spars to be Oregon spruce. Masts to be 6 inches diameter, tapered properly; booms to be 4½ inches diameter properly tapered; gaffs to be 4 inches diameter properly tapered. Masts to have mahogany trucks. All standing rigging to be steel wire rope with eye splice over spars and set up with bronze turnbuckle at deck. Chain plates for side stays to be ½ inch by 2 inch by 12 inches. All side stays and forestay to be 1⅛ inch circ. All running rigging to be best four-strand manila of suitable size. Blocks to be one size larger than size usually designated for the size of rope to be used.

Limbers: All floor timbers to have limbers cut, these to line up fore and aft and brass limber chain to be fitted.

Equipment: The following equipment is to be supplied: Shipmate No. 114 coal range completely installed with Liverpool head. Space lined with zinc over asbestos mill board. Cabin and cockpit cushions, kapoc filled, 3 inches thick, covered with Chase leather. 6 approved life preservers. 2 fire extinguishers. 1 set oil running and anchor lights. 1 fog bell. 1 fog horn. 1 canvas bucket. 1 deck swab. 2 8-ft. boat hooks. 1 6-in. liquid compass in binnacle. 1 electric horn or air whistle as desired. 1 galvanized iron kedge anchor, 100 pounds. 1 galvanized iron kedge anchor, 60 pounds. 1 manila cable, 50 fathoms, 3-strand, 3-inch. 4 docking lines each 50 feet, of 2-inch manila. Set boom crotches. Bow and stern chocks, 6-inch. 2 60-inch x 12-inch 30-gallon seamless steel gasoline tanks installed under seats complete with vent, filler, outlet, valve, etc. Tanks to be set in pine chocks and strapped in place. Complete equipment of travelers, cleats, fair leads, sheaves, etc., for attaching rigging. American yacht ensign. Boarding ladders. Portable trimming ballast in the form of lead pigs. Complete supply of coat and hat hooks, cup hooks, etc., as required. 2 copies of U. S. Pilot Rules. 12 manila rope fenders with lanyards.

Painting and Finish: Entire interior of hull to be given two coats of lead priming paint. Exterior of hull to receive one coat of lead priming paint and at least three coats of yacht white above the painted water line and at least two coats of antifouling copper paint below. Cabin interior to be finished with priming coat, two coats of flat white and two coats of white enamel. Interior natural finish trim to receive at least two coats of interior varnish. All exterior natural finish to receive at least three coats of spar varnish.

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NOURMAHAL

THE NOURMAHAL

Owner:—Mr. Vincent Astor
Dimensions:—160 x 25′ x 10
Designers:—Cox & Stevens
Builder—Robert Jacob
Engines:—Pair Six Cylinder Winton Oil Engines
Cruising Radius:—5000 Miles
Speed:—13 knots

The Largest Diesel Engine driven yacht in America, typyfying a new trend in ocean-going yacht design and propulsive machinery. Future boats of this type will follow this precedent.

This entire insert designed and produced by Rex W. Wadman, Inc., 501 5th Ave., New York City

COX & STEVENS

Views of the "Nourmahal"—designed by and constructed under the supervision of

COX & STEVENS

Naval Architects and Marine Engineers

15 WILLIAM STREET NEW YORK CITY

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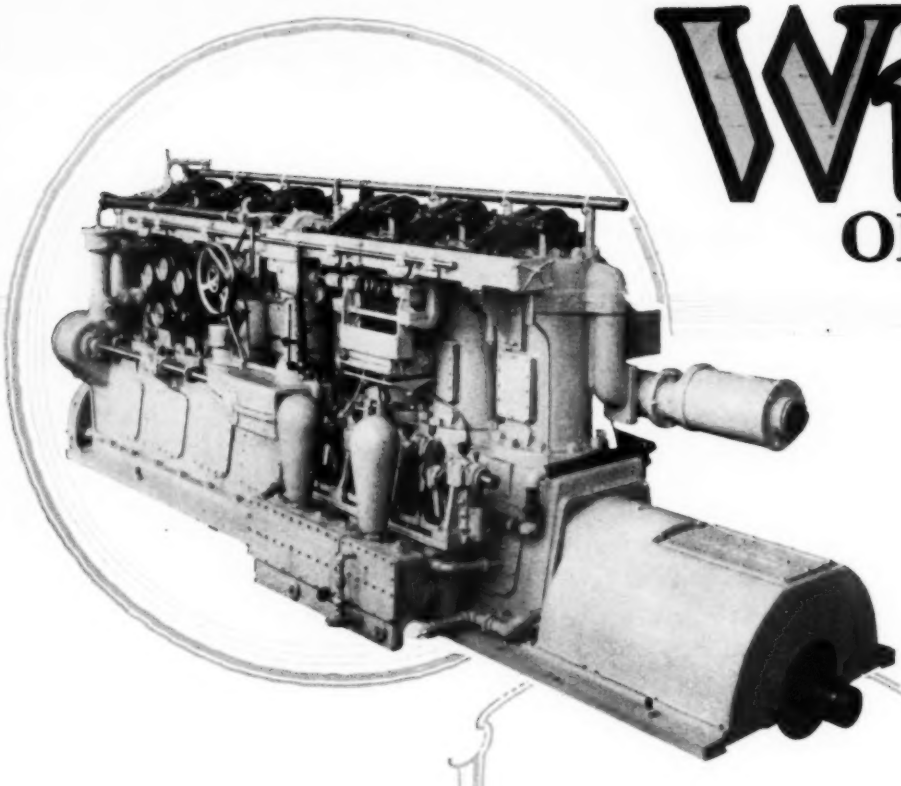
COX & STEVENS

DESIGNERS OF THE NOURMAHAL

Win

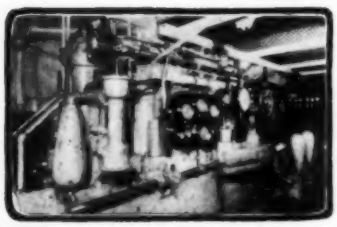
OIL DIESEL TYPE



NOT only is the "Nourmahal" the largest Diesel Engine driven yacht in America, but it has proven so completely satisfactory in every detail as to create a sensation.

The small amount of space occupied by the power plant, the large reduction in the size of the crew, tremendous increase in cruising radius and the entire lack of vibration and noise, all go to prove that the future power plants for boats of the "Nourmahal" type will be Diesel Oil Engines.

WINTON ENGINE WORKS
CLEVELAND, OHIO



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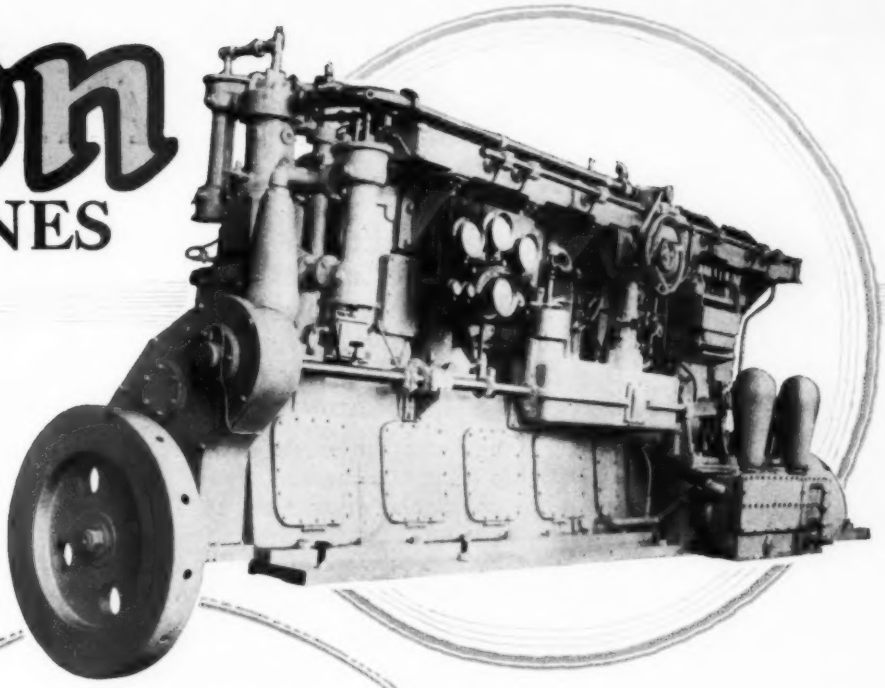
ton ENGINES

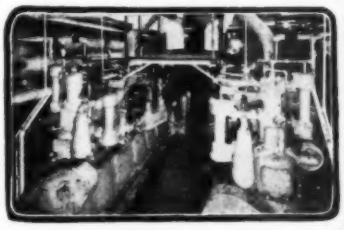


THE main power plant in the "Nourmahal" consists of a pair of six cylinder 350 H.P. Winton Diesel Oil Engines, bore 12 15/16", stroke 18", operating at approximately 225 R.P.M.

Auxiliary Winton machinery provided consists of one six cylinder 7½ K.W. Winton Electric Generating set operated by a Winton gasoline engine. One Winton auxiliary air compressor operated electrically and one Winton emergency air compressor.

We take justifiable pride in the success of the "Nourmahal" and her very complete and efficient power plant.

WINTON ENGINE WORKS
CLEVELAND, OHIO



CRANKSHAFTS

THE crankshafts in the two big Winton Oil Engines which power Mr. Vincent Astor's 160-foot Steel Yacht "Nourmahal" were forged and machined complete by the National Forge and Tool Company.

These crankshafts are made in three pieces, 7½ inches diameter at the throw, and are forged from special alloy steel at a uniform temperature, annealed and heat treated, then machined by expert workmen and subjected to severe inspection.

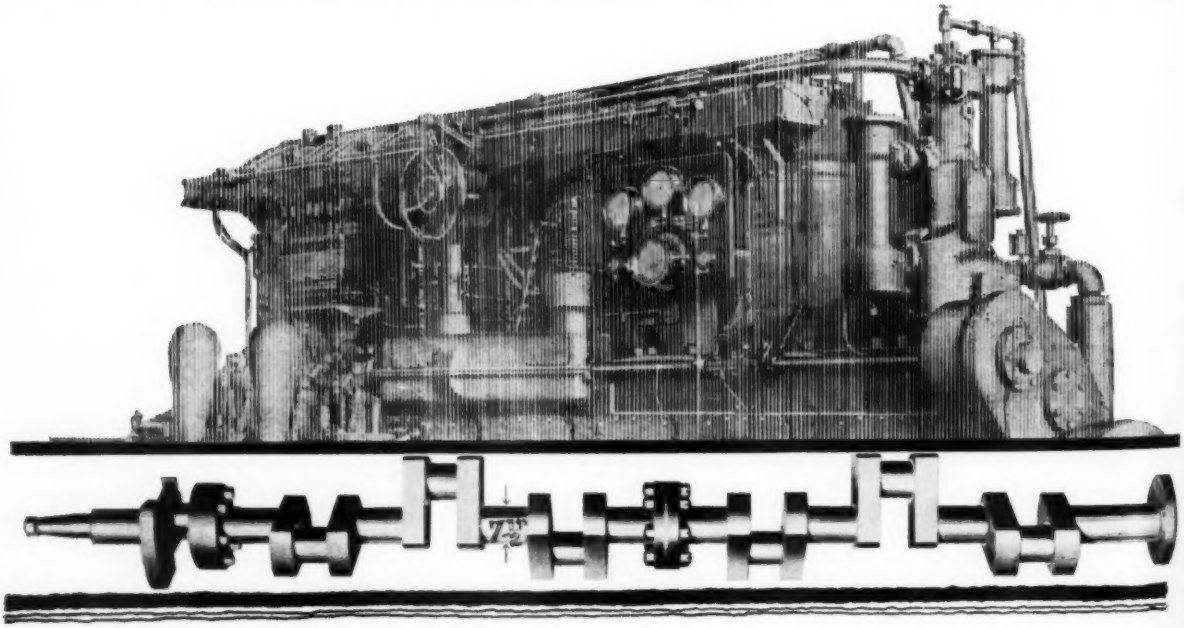
We specialize in forging crankshafts for Diesel Oil Engines and our equipment is splendidly adapted to this highly technical work.

In addition to the department handling these big forgings, we of course continue to operate our forging department for smaller crankshafts, where our production facilities are very large.

Full details concerning our facilities will gladly be supplied by addressing our principal executive offices at

IRVINE, WARREN COUNTY, PA.

NATIONAL FORGE AND TOOL COMPANY



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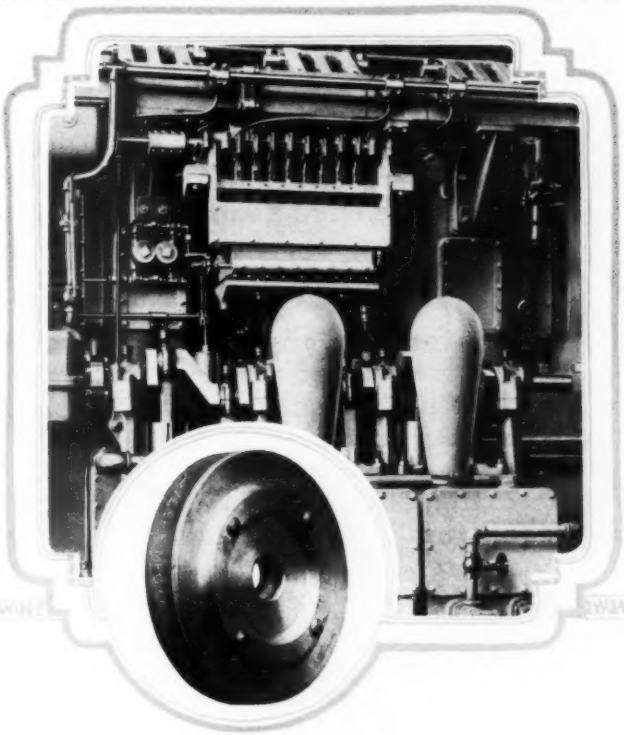
IDEAL PUMP VALVES

PROVE THEIR EFFICIENCY UNDER SEVERE TEST



DURING the recent trials of the "Nourmahal" every component part of the power plant was fully tested and proven equal to the demand placed upon it.

"Nourmahal's" power plant consists of a pair of six cylinder 350 H.P. Winton Diesel Engines which are equipped with IDEAL ARMORED PUMP VALVES.

These big engines require a constant supply of water and oil to operate at their full efficiency, and the water and oil pumps, operating at comparatively high speed, are fitted with IDEAL VALVES because the engineers of the Winton Engine Works have proven by actual experience that they do the work required of them better and stand up longer than any other valve they have been able to procure.

IDEAL ARMORED PUMP VALVES are manufactured by

LAKE ERIE MANUFACTURING COMPANY, 192-198 Chicago St., Buffalo, N. Y.

Catalog illustrating and describing full line mailed upon request

CASTINGS

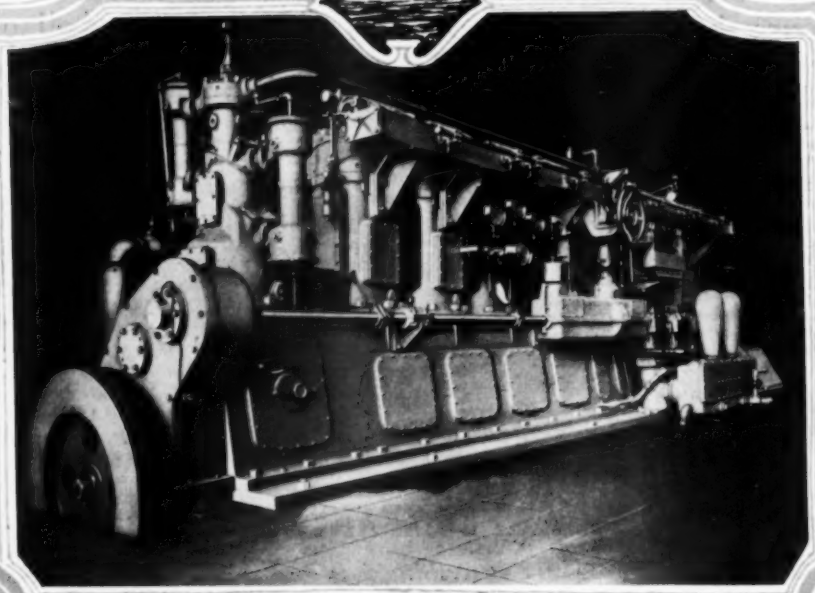
THE INTERSTATE FOUNDRY COMPANY

General Offices, Cleveland, Ohio.

A PAIR of 350 H.P. six-cylinder Winton Oil Engines, a six cylinder Winton Gasoline engine and two Winton Air Compressors are installed in the engine room of the "Nourmahal"—Mr. Vincent Astor's very successful 160-foot Diesel Driven Yacht.

The castings for these engines, etc., were supplied by the Interstate Foundry Company, as we specialize in cylinder and crankcase castings, no matter how large or how small.

We are extremely proud of the remarkable success of the Winton installation in this yacht, as it reflects so favorably on the dependability of Interstate Castings.



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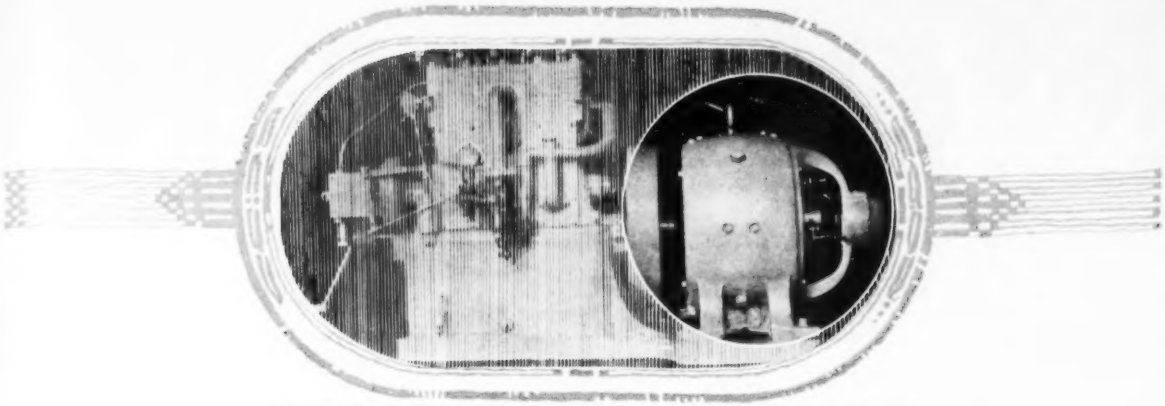
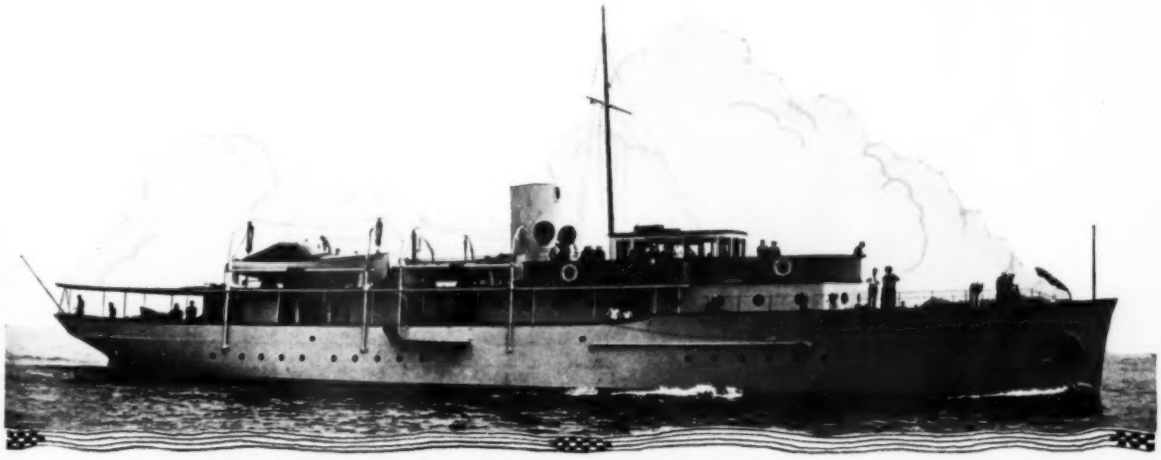


Lighting Satisfaction Depends as much on your Generator as on your Driving Unit

IN selecting your lighting equipment, careful consideration should be given to the electrical features of the set. Boat owners and manufacturers of engine sets have found that Imperial Generators can be relied on to furnish "Flickerless" light.

When the "Nourmahal" was built, no expense was spared to secure the best obtainable equipment. Consequently the Winton Generating set installed in the engine room was equipped with an Imperial Generator.

Imperial Generators can be supplied in sizes ranging from 1 to 50 K.W. and motors from 1 to 100 H.P. and in all voltages.



IMPERIAL ELECTRIC COMPANY, AKRON, OHIO

New York Pittsburgh Columbus Chicago Boston Philadelphia Cincinnati

Export Office: Whitehall Bldg., New York

IMPERIAL

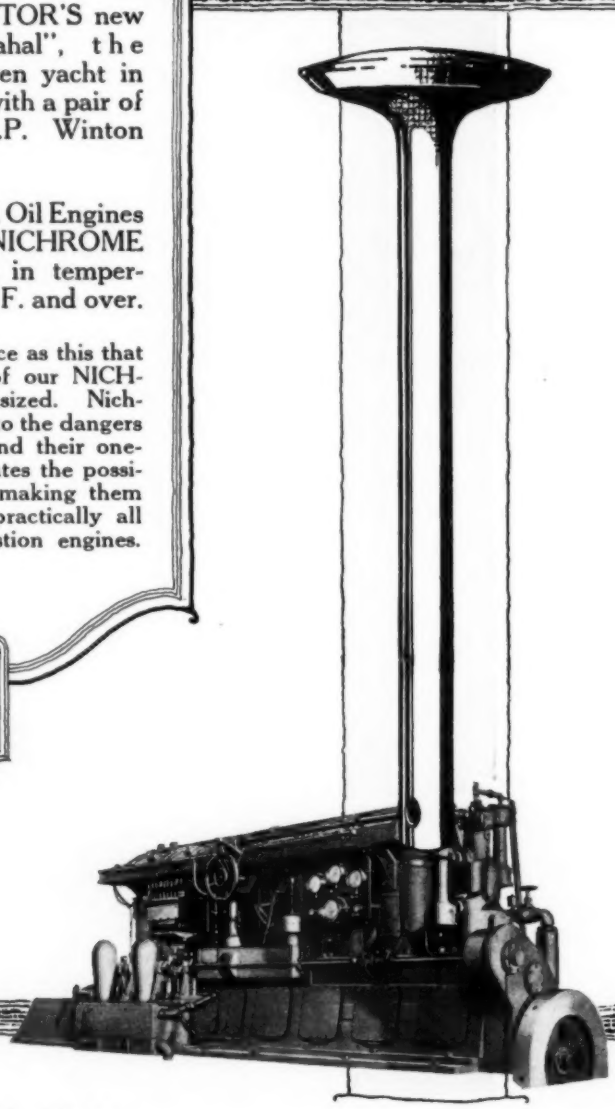
SINCE 1889

Nichrome Valves

MR. VINCENT ASTOR'S new Yacht "Nourmahal", the largest oil engine driven yacht in America, is equipped with a pair of six cylinder, 350 H.P. Winton Diesel Oil Engines.

And the Winton Diesel Oil Engines are equipped with NICHROME valves which operate in temperatures of 1200 degrees F. and over.

It is in such extreme service as this that the superior properties of our NICHROME Alloy are emphasized. Nichrome Valves are immune to the dangers of pitting and warping and their one-piece construction eliminates the possibility of breakage, thus making them the efficient valves for practically all types of internal combustion engines.



Nichrome Valves are manufactured under the HENDERSON Patents by

DRIVER-HARRIS COMPANY

HARRISON, NEW JERSEY

Chicago - Detroit - Canada - England - France

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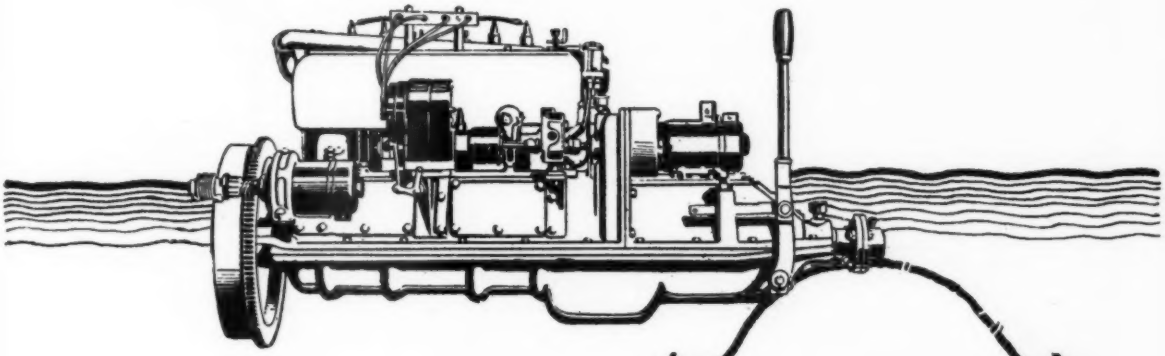
KERMATH



THE tender on Mr. Vincent Astor's new 160-Foot Steel Yacht is powered with a four-cylinder Kermath Engine.

Another example of an experienced Yachtsman, well able to purchase regardless of price, selecting the reasonably-priced and efficient Kermath, knowing that it is the utmost obtainable in a marine power plant within its power limits.

You can enjoy the same feeling of security, the same dependable service as is enjoyed by Mr. Astor, by installing a Kermath in **your** boat.

Write for Catalog.

KERMATH M'F'G COMPANY
DETROIT - - MICHIGAN

The main saloon of the Nourmahal, especially designed and built for Mr. Vincent Astor, suggests dignified, simple comfort in every detail. The beautifully toned, walnut paneled walls and real fireplace of black and fawn marble with the fawn colored seamless rug, form a beautiful setting for the hand-made walnut furniture, which is slip-covered in English linen, hand-blocked in blue figured in rose, green and yellows. This same flowered linen is used for the window draperies. Interior designed and executed by Hampton Shops in co-operation with Charles A. Platt, architect.

THE Hampton Decorators who designed and installed the entire furnishings of the Nourmahal are equipped to design and carry out complete interiors to meet the requirements of any yacht.

They will be pleased to confer with marine architects and owners and to submit estimates without obligation.

Hampton Shops
18 East 50th Street
facing St. Patrick's Cathedral
New York

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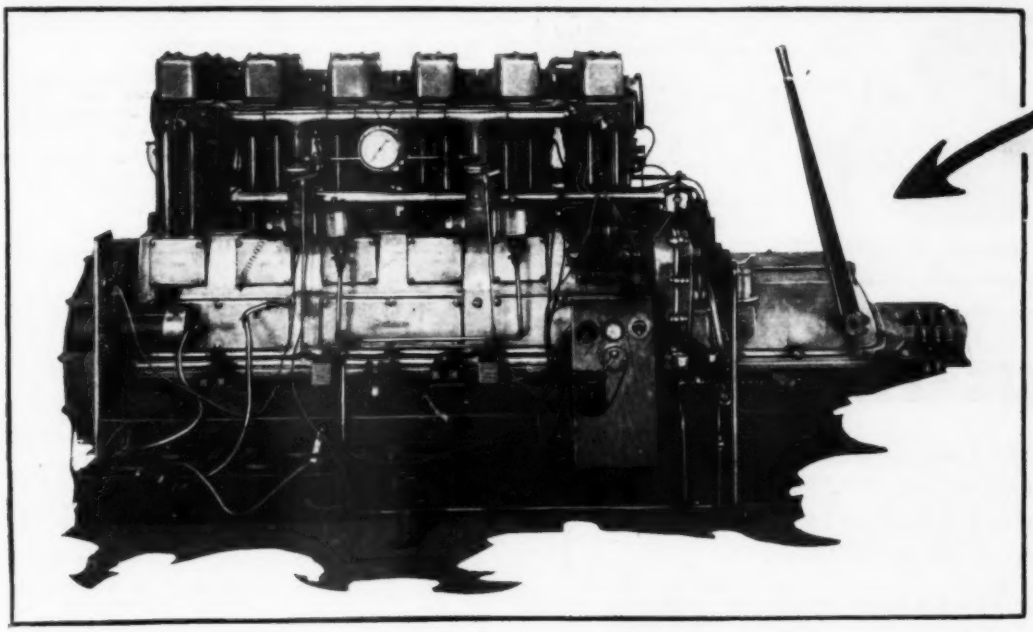
A NEW SPEEDWAY



VIEW OF ENGINE ON TEST BLOCKS

6 CYLINDER 300 HORSE POWER

Latest development of High Power Marine Gasoline Engine.

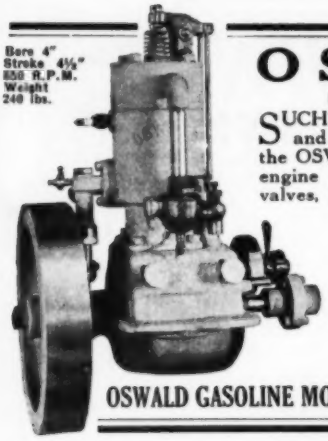
Not an ultra high speed motor — A substantial, strong built marine motor — for day and express cruisers from 50 to 90 feet.

Details and price on application.

PROMPT DELIVERIES

CONSOLIDATED SHIPBUILDING CORPORATION

MORRIS HEIGHTS **NEW YORK CITY**



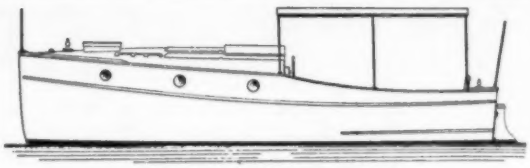
OSWALD

5 H. P. FOUR CYCLE

SUCH quality of design, materials and workmanship as used in the OSWALD is seldom seen in an engine of this size. Overhead valves, lubrication through drilled crankshaft, every part perfectly machined. Finest materials and equipment money can buy. The product of 8 years' experience, built in a modern well equipped factory.

Write to-day for full description and prices

OSWALD GASOLINE MOTOR CO., 3103 Turk Street San Francisco, Cal.



28 x 8' 6" Cruiser "Scout"

Built Right — Priced Right. This season's greatest boat value. Large cockpit, roomy cabin with toilet, galley and berths for four. Full headroom. 4-cycle motor, speed 9-10 M.P.H., fully equipped for cruising, $2,500.

We furnish K.D. frames to complete outfits in both runabouts and cruisers. Let us quote on your requirements.

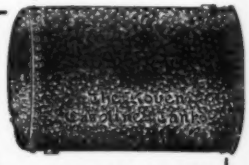
RICHARDSON BOAT CO.
370 Sweeney St., No. Tonawanda, N. Y.

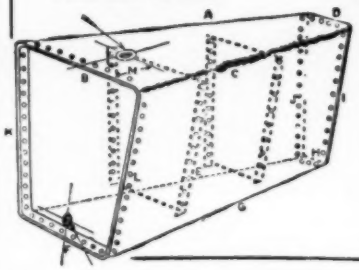
MULLINS STEEL BOATS CAN'T SINK

Big, new Catalog, describing many styles of the latest type of "V" Bottom steel motor boats, rowboats or canoes mailed upon request. *Write for it today.*

THE MULLINS BODY CORP.
Boat Department
622 Depot Street Salem, Ohio

Gasoline Tanks, Air Whistle Tanks, Mufflers, Stacks, Special Plate and Sheet Metal Work for Pleasure Boats.





L. O. KOVEN & BROTHER
Main Office,
158 Ogden Ave.,
Jersey City, N. J.

Branch, 50 Cliff St.,
New York City.

MASTER REVERSE GEARS

Strictly high quality reverse gears. Multiple disc clutch, nickel steel shaft and gears, hardened and ground, with bronze bushings working on hardened steel pins. Aluminum case saves weight.

Four sizes transmitting 12, 25, 50 and 85 H.P. respectively per 1000 R.P.M.

Write today for prices.
MASTER MOTOR CO.
19 Price Ave.
Lockport, N. Y.

The Gordon Silencer and Under-Water Exhaust

No Noise — No Smoke
No Pounding — No Grease
Does not retard motor

With Fresh or Salt Water Fittings
F. O. B. Cleveland

$12.00

The Gordon Propeller & Mfg. Co.
9001 Desmond Ave. Cleveland, Ohio

Built by
LUDERS
The Last Word in Yacht Designing and Building

Luders Marine Construction Company
Stamford, Conn.

Write Us for Quotations

on any marine supplies or specialties you want—one or one hundred, any article or any quantity. We don't issue a mail order catalog because conditions, stocks and prices change too frequently these days—but we are here to give you intelligent service, prompt attention and honest prices on whatever you want.

Write us today
Anything for boat or ship, large or small.
Honest Goods at Honest Prices.

BOSTON MARINE HARDWARE CO
259 Atlantic Ave., Boston, Mass.

Advertising Index will be found on page 126

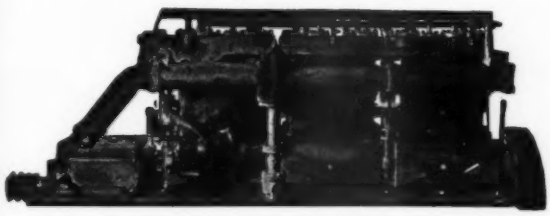
PURDY BOAT COMPANY

Designers and Builders of

EXPRESS CRUISERS

TRENTON **MICHIGAN**

YACHTS -- CRUISERS -- HOUSE BOATS



Experience Teaches — Hence the reason that once an owner of a New York Yacht Launch and Engine Craft always an owner. Many years experience in high class Yacht Design and Construction are at your service.

20th CENTURY MOTORS

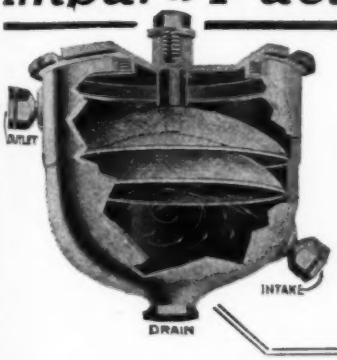
400 to 500 R. P. M.
Heavy Duty Type
Four cycle. Bore 6½", Stroke 8"

2 cyl. 15-20 B. H. P.
4 cyl. 40-50 B. H. P.
6 cyl. 65-75 B. H. P.

NEW YORK YACHT LAUNCH & ENGINE CO., Morris Heights, New York City

Impure Fuel Due to Water!

KLEENGAS PURIFIER



Fully 90% of your carburetor trouble is caused by water and dirt in your fuel. You can prevent this trouble entirely with a KLEENGAS PURIFIER.

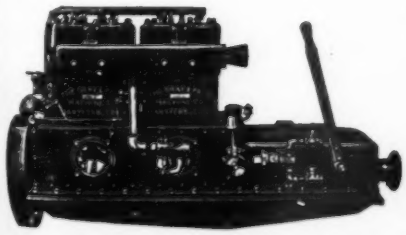
You can't prevent water from collecting in your fuel tank and line—it condenses from damp atmosphere as well as the water in the gas or kerosene you buy. You can't prevent sediment, dirt, fluff, rust, impurities—some scales off the tank lining—some comes in the gasoline itself. But you can prevent all the troubles caused by these impurities.

KLEENGAS is a high grade PURIFIER scientifically designed, simple in construction and made of the best non-corrosive materials. Aluminum bowl, double parabolic fine mesh bronze screens, brass drain tap at bottom. It cleans itself by the swirling motion, the impurities dropping down so they don't clog the screen. Large capacity allows full gas flow and requires only occasional draining.

Order a KLEENGAS today—$10.00 postpaid. Money cheerfully refunded if not as guaranteed. Hundreds in use. Easily installed—no soldering.
Excellent proposition for distributors and dealers—write

THE NATIONAL AUTOMOTIVE MFG. CO.
822 CHAMPLAIN AVE., N. W. - - - CLEVELAND, O.

GRAY-PRIOR
FOUR CYCLE
MARINE MOTORS
Built up to a Standard—not down to a price



A Clean-Cut Power Plant

For Commercial Boats and Cruisers

Model D-4, Medium Heavy Duty
36 Horse Power Bore, 4½ inches Stroke, 8 inches

Write today for full description and prices

THE GRAY & PRIOR MACHINE COMPANY
56 Suffield Street **Hartford, Conn., U. S. A.**

BARBOUR METAL BOATS

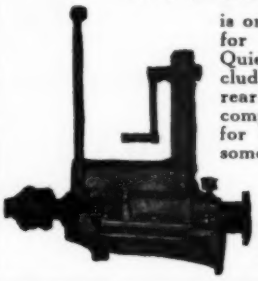
THE strongest, most durable boats of their size that can be built. Flat bottom and V-bottom, all good seaworthy models. Outboard motor boats, launches, life boats and rafts from 14 ft. up. Also patterns and K. D.

Write today for catalog and prices.

BARBOUR BOAT & PATTERN CO.
Valley Park, St. Louis Co., Mo., U. S. A.

SYRACUSE REVERSE GEAR

20% Price Reduction



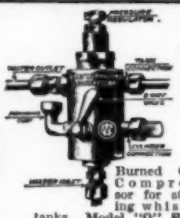
is only one of the good reasons for buying a Syracuse Gear. Quiet, clean, all enclosed. Includes clutch, reverse gear and rear starter, all in one neat, compact case. Strong enough for commercial boats — handsome enough for any boat.

10 H. P. to 100 H. P.
Write to-day for catalog.

Syracuse Gear Co.
Syracuse, N. Y., U. S. A.

ZUNDEL

Burns denatured alcohol. Width 20 in. Depth 15 in. Height to top of tank 9 in. Price $17.50.



Burned Gas Compressor for storing whistle tanks. Model "O" Price $10.75.

6-volt Marine Horn. 9 in. high, 4 in. wide at base, weighs 2¾ lbs. Price $9.50.

R. W. ZUNDEL COMPANY, Inc.
47 Whitehall St.—Phone Bowling Green 9157—New York, N. Y.

BOAT SUPPLIES

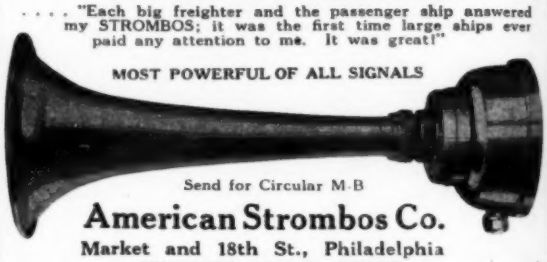
SAFETY—PRESTIGE—PLEASURE

are naturally yours with a

"STROMBOS"

. . . . "Each big freighter and the passenger ship answered my STROMBOS; it was the first time large ships ever paid any attention to me. It was great!"

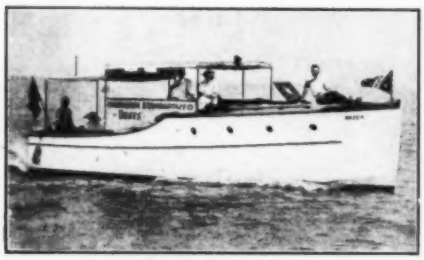
MOST POWERFUL OF ALL SIGNALS



Send for Circular M-B

American Strombos Co.
Market and 18th St., Philadelphia
NEW YORK—507 5th AVENUE

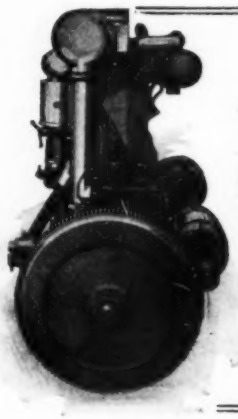
Are You Going South?



"HARRISON 32" in action

The "HARRISON 32" is a thoroughly salt water boat unexcelled for ease of handling, speed, seaworthiness, comfort and beauty. An extremely high quality boat at a moderate price. This boat accelerates like a high-powered car from a trolling speed to a comfortable cruising speed of 12 M.P.H. Pronounced by all who have seen them to be the biggest value ever offered and the ideal boat for Southern use. Price with 40 H.P. motor, including War Tax, $4950.00.

R. W. HARRISON BOAT WORKS
Bay View Park *Established* 1897 TOLEDO, OHIO



Peerless

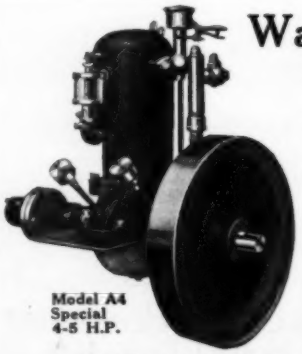
New High Speed—Light Weight

The product of experience and development in actual boat service. Extremely light weight is secured by employing special castings and alloy steels throughout.

Bore 5". Stroke 7". Speed 1650 R.P.M.

4 cyl. 125 H.P..... 700 lbs.
8 cyl. 250 H.P..... 900 lbs.
12 cyl. 400 H.P.....1100 lbs.

Peerless Marine Motor Co.
2160 Niagara St. Buffalo, N. Y.



Model A4 Special 4-5 H.P.

Waterman Motors—

Known The World Over

This High Grade Power Unit is Offered at

Greatly Reduced Price

Write Promptly

For particulars and circulars

ARROW MOTOR & MACHINE CO.
738 Frelinghuysen Ave., Newark, N. J.

A Belle Isle Bear Cat

created a sensation at the Chicago Pageant of Progress "a snappy boat", "a wonderful little craft", "a boat to be proud of",—these and scores of other favorable comments were expressed by some of the leading lights of the boating fraternity who had the pleasure of riding in our demonstrator there.

26 ft. over all, mahogany and black walnut hull, 4 cylinder 125 H.P. Hall-Scott marine motor. Guaranteed speed 32 miles per hour.

Write for illustrated circular.

Belle Isle Boat & Engine Co.
9662 E. Jefferson Avenue, Detroit, Michigan.
"Dealers in Boats and Engines of all kinds."

Advertising Index will be found on page 126

CHAS. CORY & SON, Inc.

CORY SAFETY SERVICE

MANUFACTURERS & INSTALLATION & LIGHTING SYSTEMS

ENGINEERS OF INTER-SIGNALLING EQUIPMENTS

Cory Building, 183-7 Varick Street, New York, N. Y.

Marine Distributors and Installation Engineers of

Foamite Firefoam

in the United States of America

The adoption of oil as fuel for steamships is responsible for a large percentage of the increase in the number of marine fires.

Destruction is multiplied by the application of water which floats the fire to other locations.

FOAMITE FIREFOAM, having a lower specific gravity than oil, remains on the surface, confining and smothering the flame with a chemical blanket resembling lava.

Further particulars sent upon request.

Improved Motor Boat Closet

Figure 1404

Dimensions: 18 x 18 x 11" high to top of bowl; 2½" cylinder. For above or below water line.

The best little closet on the market today, possessing many of the advantages of the large size toilet. All brass and porcelain. Oak seat and cover.

All prices subject to market advances, which are continually changing.

THE J. H. CURTISS CO.

The J. H. Curtiss Co.

Pioneer Specialists in Marine Sanitary Fixtures

Since our advertisement appeared in the first issue of MoToR BoatinG, December, 1907, hundreds of Curtiss fixtures have been installed in motor cruisers and yachts of all sizes, including some of the finest boats launched within this period.

The Curtiss line is exceptionally complete, varied in type, size and price to meet every possible requirement. Each model has been designed in accordance with our wide experience in boat work and can be depended upon in quality, service and durability no matter whether it is our highest or lowest priced model.

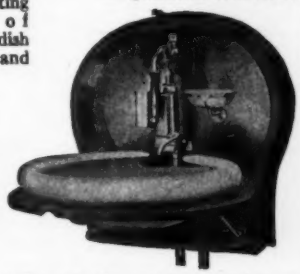
"PRICES ON APPLICATION"

With Pump

Cock on pump swings upward, thus preventing breaking of bowl. Soap-dish is porcelain and removable.

No. 5 Height, 19 in. Width, 19 in. Depth Closed, 6 inches. Quartered Oak Case, or Mahogany Case.

Lining and Fixtures Nickel-plated. Porcelain Bowl. Mahogany or Quartered Oak Case.



2 South Street, New York

Yacht Construction — *Repairs, Outfitting, Storage*

PORT JEFFERSON MARINE RAILWAY CO.

PORT JEFFERSON, N. Y.

Large Railway 1000 tons cap'y, 15 feet draft.
Small Railway 300 tons cap'y, 10 feet draft.

Gasoline, water, yacht supplies — *Excellent harbor, all facilities*

FINISHED CRANK SHAFTS

We are furnishing them to some of the leading marine engine builders. Carbon and Alloy Steel, Heat Treated to your own specifications. We grind all Pins and Bearings. Forged, machined, and finished complete in our own plant. Let us quote you.

P. H. Gill & Sons Forge and Machine Works, Brooklyn, N. Y.

Motor-boats — Sailboats

"V" Bottom Hydroplanes

CABIN CRUISERS

of all types made from our plans or to your design. Let us tender on your new boat.

CANADIAN BOATS

Can be laid down in U. S. cheaper than U. S. boats of the same quality and workmanship. Write for our Catalogue.

WALTER DEAN CANOE & BOAT CO., Ltd.

"Boat-builders since 1889"

TORONTO — CANADA

DECK CANVAS-ALL WIDTHS

YACHT SAILS-AWNINGS-SPRAY HOODS-Etc.

522 So. Delaware Ave Philadelphia — **GEO. R. BURROWS. Inc.** — 2 South St New York

Automatic Self Bailer

Drains your bilge simply by action of boat passing through the water. For any boat, slow or fast, large or small—fresh or salt water. Guaranteed to operate for the life of boat without repairs, adjusting, oil or upkeep attention. In ordering state thickness of planking and length safety handle desired.

Write for details. Good proposition for dealers.

ST. CLAIR IRON WORKS
206-212 Witherell Street, St. Clair, Mich.

DOMAN
OSHKOSH, WIS.

DOMAN MARINE MOTORS
from 4 to 50 H.P.

There is a size to suit you. Write for literature. Doman engine division of

UNIVERSAL PRODUCTS CO.
Oshkosh, Wis.

The Barker Motor

(Two-Cycle)

"Have run my Barker Motor thirty thousand miles in ten years and it is good for ten years more."—Name on request.

Built for long service
Sells at low price

In New York: TOPPING BROS. 122 Chambers St.
In Boston: TOPPAN CO. 101 Haverhill St.
In Philadelphia: KEAN, SHARON & CO. 144 N. Second St.

The BARKER FACTORY
Norwalk Conn.

Write for Barker's "Red Letter" Book of Motors

Trade *Mark*

The most efficient and dependable ignition system for motor boat engines is the Bosch High Tension Magneto. It develops added Power, Economy and Comfort.

Over 500 Service Stations in 500 Centers

AMERICAN BOSCH MAGNETO CORP.
Main Office and Works: Springfield, Mass.
Branches at New York, Chicago, Detroit, San Francisco

B. Schellenberg & Sons

EVERYTHING FOR THE PERSON OF THE YACHTSMAN, HIS OFFICERS AND HIS CREW

Clubs, yacht owners, commercial boat owners, should take advantage of our many years' experience in outfitting the mariner, both inland and deep sea.

Crews and Club Attendants furnished without Charge.

B. SCHELLENBERG & SONS
99 to 105 Myrtle Ave., near Bridge St.
Brooklyn, N. Y.

DON'T BUY A BOAT
TILL YOU SEE THE
CAPE COD 20-FT. DORY LAUNCH

The Safest Little Family Boat Built. Motor Housed In.
Other Standardized Cape Cod Boats

17′ Sail Dory	14′ Outboard Motor
16′ Shallow Draft	10′ Row Boat
17′ Life Saving Dory	12′ Row Boat

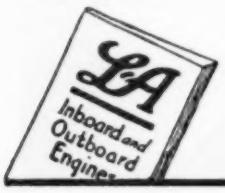
Write for Prices

CAPE COD SHIPBUILDING CORPORATION
Successors to Cape Cod Power Dory Co.
Builders of craft to 150′ length, or 10′ draft
Winter Storage
Main Office and Works, 367 Main Street, Wareham, Mass.
New York Show Rooms, 412 Eighth Avenue, New York City
Export Office, Factory Sales, Sprague and Duckett, 342 Madison Ave., New York City

Get this LA Engine Book

—it gives valuable information about motor boat engines. It also describes the full line of L-A inboard and outboard motors and tells of the 30 days' free trial plan.

Write for your copy today.



LOCKWOOD-ASH MOTOR CO.
2107 Jackson St. Jackson, Mich.
(22)

The Compass For Your Boat

should be the best obtainable. For seventy years Ritchie compasses have been the choice of experienced navigators.

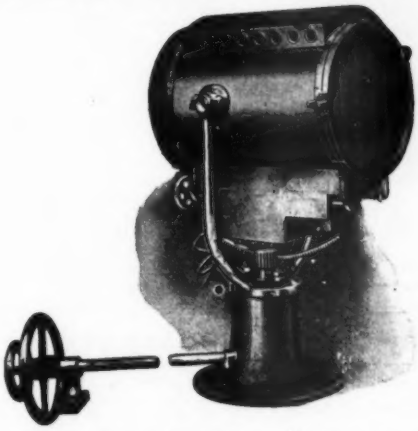
Select the Ritchie for your boat.

Our catalog will show you the one best suited for your needs. Send for a copy today.

E. S. RITCHIE & SONS
Established 1850
110 Cypress Street
Brookline, Mass.

Advertising Index will be found on page 126

CARLISLE & FINCH ELECTRIC SEARCHLIGHTS

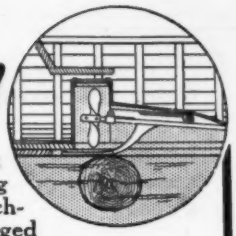


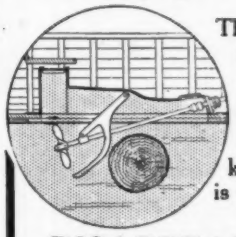
have for years been the choice of careful motor boat and ship owners. Made in all diameters, from 7" to 60". Used on every size craft from motor boat and yacht to battleship and ocean liner.

The Carlisle & Finch catalog of searchlights will be mailed to any boat owner, builder and marine architect on request

THE CARLISLE & FINCH COMPANY
261 East Clifton Ave. Cincinnati, Ohio

The Propeller *Disappears!*





The moment protecting skeg touches submerged obstacles, the propeller disappears within boat, leaving the keelson perfectly clear. Motor is automatically throttled.

DISAPPEARING PROPELLER MOTOR BOATS

The snappiest little motor craft afloat. It will take you to shallow creeks, ponds — any waterway known or unknown — over sandbars or sunken logs—any place you can row.

Beautifully finished and built of the finest possible grade of materials.

Motor is silent, extremely economical; 9-9½ m.p.h. —20-25 m.p. gallon gasoline.

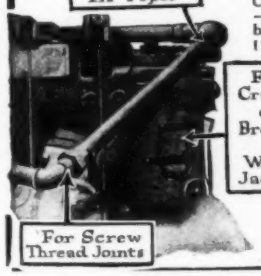
Disappearing Propeller Boat Companies

97 King Street, W. Toronto, Can. 731 Main Street Buffalo, N. Y.

SMOOTH-ON

Iron Cements

For Repairs around your boat



Carry a can of Smooth-On on board —it will save you expensive repair bills.

Use Smooth-On Cements for repairing cracks in waterjackets, cracks in pumps, scored cylinders, leaky screw-thread joints, etc.

Know more about this sure repair cost-cutter — send for our Motor & Home Repair Booklet No. 268 illustrating many repairs—it's FREE.

So'd by Supply Houses

SMOOTH-ON MFG. CO., Jersey City, N. J., U. S. A.

BRENNAN FOUR CYCLE MOTORS

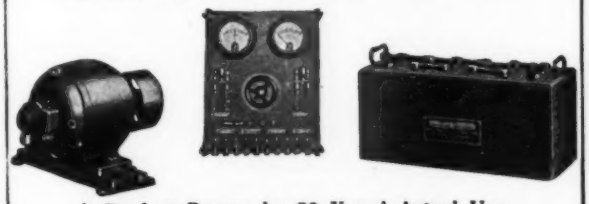
Strictly quality motors at the price you want to pay. Handsome, clean-cut unit power plants which look good in the boat and give the kind of service that pleases the experienced boat owner. Suitable for pleasure or work boats.

Prices Reduced 20%

Write to-day for complete catalog and new prices.

BRENNAN MOTOR MFG. CO.
Cable Address "Binot" Syracuse, N. Y., U. S. A.

"DAYTON" LIGHTING AND IGNITION SYSTEMS. 6, 12, 32 VOLTS COMPLETE



A Product Proven by 20 Years' Actual Use.
Complete Catalogue Upon Request.
THE A-C ELEC. MFG. CO., DAYTON, OHIO

Rebuilt Marine Engines

IN CHICAGO

These engines are completely overhauled, rebuilt and refinished by our marine engine experts. Look like new, run like new, and are thoroughly guaranteed. Here's a chance to get a high-grade motor at a big saving.

Our present stock includes Sterlings, Domans, Grays, Buffalos, etc., taken in trade for new engines. Write today for latest list if you want a real bargain.

W. L. MASTERS & COMPANY
231 North State Street Chicago, Illinois

Agents for Sterling, Scripps, Frisbie, Kermath, Universal, Gray & Evinrude Motors. New engines and repair parts always in stock.

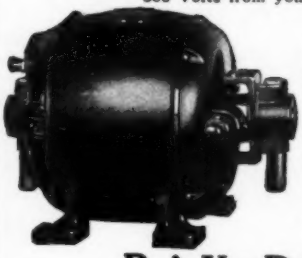
Crockett's Spar Composition
is the only varnish
which will last
a season on
a deck

E. Z. VARNISH REMOVER
Film remains soft until removed

THE DAVID B. CROCKETT COMPANY
Bridgeport, Conn.
The Bissell Varnish Company, *Successor*

RAY-DI-CO "Dynamotor"

Reg. U. S. Patent Office
500 Volts from your 32-volt system



The very heart of a radio telephone is the generator. Ray-Di-Co "Dynamotor" is a complete motor and generator combined, operating on your 32-volt lighting system and delivering 500 volts, 50 or 75 watts. Ray-Di-Co "Standard" gives 500 volts up to 175 watts capacity.

We manufacture and install radiophones and radiophone equipment. Write for details.

RAY-DI-CO
(Ray-dee-Ko)
1549 North Wells Street Chicago, Illinois

"LIBERTY KID"

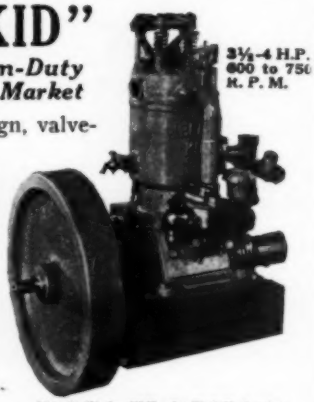
The Best Little Medium-Duty Marine Engine on the Market

High grade four cycle design, valve-in-head, removable cylinder head, bronze rocker arms, push-rods, plunger pump, etc. Over 200 in actual use.

Immediate deliveries on early orders. Write for catalog and testimonials.

AGENTS AND DEALERS WANTED

A. G. HEBGEN
Manufacturer and Sale Distributor
440 Market St., San Francisco, Cal.



Also built in "Liberty Twin" Double Cylinder Model giving 8-10 H.P., for gasoline or kerosene

Money Saved Is Money Made

E. J. WILLIS CO. 85 Chambers St., New York

WOOLSEY COPPER PAINTS

***and* MARINE PAINT SPECIALTIES ARE THE WORLD'S STANDARDS**

Copper Paints—Brown, Red and Green, Yacht White, Deck Paint, Marine Mixed Paints, Metal Bottom Paint, Seam Paint, Seam Compounds, Sparon (Spar) Varnish, Engine Enamels, Canoe Enamels, Boat Bottom Seam Compound, Copper Bronze, Light Sea Green and Regatta Green Yacht Bottom Paints, etc.

C. A. WOOLSEY PAINT & COLOR CO.
Jersey City, N. J., U. S. A.

Send for our Marine Booklets, Free—Contain Color Spots and information "How to Paint a Boat."

Motor Boats, Row Boats, Hunting Boats, Fish Boats, and Canoes.

Special Boats for Outboard Motors, Motor Boats 16 to 24 ft. long. For lakes, rivers, shallow water and weeds.

Catalog Free. Save Money. Order by Mail. Please state what kind of boat you are interested in.

THOMPSON BROS. BOAT MFG. CO.
1907 Ellis Ave.
Peshtigo, Wis.

He Knew What a trim, stanch, rot-resisting craft his would be if she was

A CYPRESS BOAT

so, naturally he had her built of CYPRESS.

TIDEWATER CYPRESS, "the Wood Eternal," is identified by the CYPRESS trade-mark "arrow." Please write us immediately if you can't find it.

Southern Cypress Manufacturers' Assn.
1317 Perdido Building, New Orleans, La., or
1317 Heard National Bank Bldg., Jacksonville, Fla.

GIERHOLTT

Gearless Drive Outboard Motors
Marine City, Mich.

The Motor of No Drawbacks

Solves:
The Starting Problem
The Weed Problem
The Shallow Water Problem

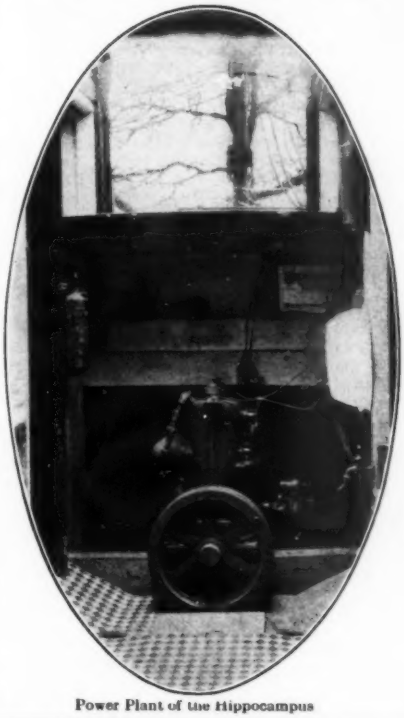
GEARLESS DRIVE

In carrying or installing position heaviest part weighs 40 lbs. All parts accessible. Carries like a hand bag. Detachable propeller shaft. Removable gas tank. Convertible to inboard. Write for particulars.

AGENTS WANTED

Advertising Index will be found on page 126

We Have a Palmer Ready for Your Boat



Power Plant of the Hippocampus

No matter what use you put your boat to one of the Palmer Family will serve the purpose with 100 per cent. dependability and economy.

1 to 6 Cylinder–2½ to 85 Horsepower

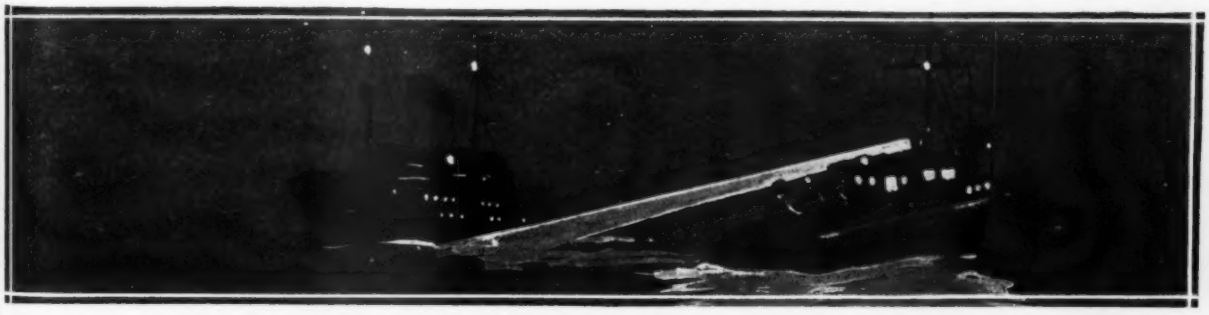
Information as to the most suitable power plant for your boat as well as our Reduced Price List will gladly be sent you.

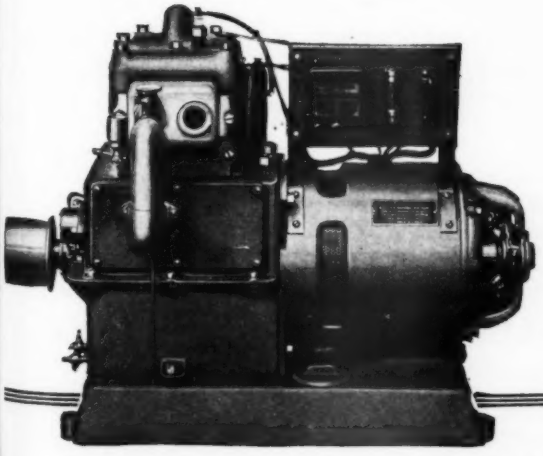
PALMER BROTHERS ENGINES, Inc.

COS COB, CONN.

Branches and Distributers

New York Norfolk Seattle Vancouver
Philadelphia Baltimore Portland, Me.





WITH the Columbian C. Y. C. Electric Generating System you can equip your cruiser or yacht with the most reliable and economical lighting system possible to purchase.

The engine operates on kerosene and its parts are interchangeable with those of the Ford Motor which are obtainable at any port. Engine and generator are direct connected and the entire system takes up but small space in the engine room.

Dimensions—32 volt capacity, 1½ kw.; length, 33 in.; width, 22 in.; height, 23 in.; weight, 425 lbs. Weight of the batteries, 375 lbs. Write us for literature and exclusive selling proposition to dealers in the marine field.

COLUMBIAN BRONZE CORPORATION

522 Fifth Avenue, New York City

The
Commodore
Yacht Chair for Comfort

It Folds and averages 8″ per chair for stowage

Opens 20″ between arms. The comfort of the Commodore, the coolness and its convenient manner of stowing, make it almost a necessity for yachtsmen. Every boat should be equipped.

Yacht clubs, country clubs and smart homes also are buying Commodore chairs.

Staunch construction, brass fastenings, spar varnish—done up shipshape.

Retail Prices

Solid Mahogany, each....$10.75
Forest Green, each..... 8.00

Packed 6 per case—20% discount

Local salesmen wanted

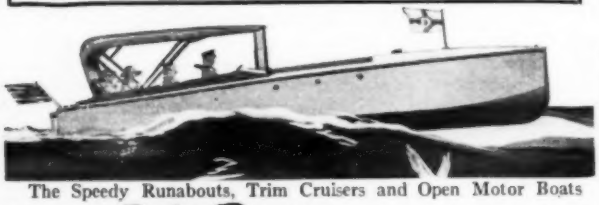
ALBANY BOAT CORPORATION
Seventh Street Watervliet, N. Y.

DENSMORE

Marine Railways Repairs
Overhauling Laying Up Storage

Our facilities have no superior in the vicinity of Boston.
The Densmore 73-ft. Standardized Cruising Yacht strikes a new note in high class yacht construction. A boat of known ability and demonstrated success, ready for prompt delivery. Details on request.

J. M. DENSMORE COMPANY
Offices 79 Milk Street
Boston Plant, Atlantic, Mass.
J. M. Densmore, Naval Architect
Ralph E. Winslow, Consulting Naval Architect



The Speedy Runabouts, Trim Cruisers and Open Motor Boats bearing the Racine trade-mark give their owners keen pleasure and complete satisfaction.

We also build standardized runabouts, open motor boats, special boats for outboard motors, rowboats, and the famous Racine line of canoes. We will design and build a boat according to your specifications.

Tell us the kind of a boat in which you are interested and we will mail you descriptive catalog.

RACINE BOAT COMPANY, 1908 Holman Street Racine, Wisconsin
Pioneer Boat Builders of the West

Mysteries of the Chart Explained

(*Continued from page* 30)

projection is made is assumed to be tangent to the earth at the equator. The rectangles formed by the intersection of the meridians of longitude and parallels of latitude will have variable altitudes which increase from the equator according to known laws. The proportionate increase is expressed in minutes at the equator as a unit and the length of the meridian as increased between equator and any given latitude constitutes the number of Meridional parts corresponding to that latitude. This information is all tabulated for ready reference by the navigator.

Another form of chart construction is the polyconic system of projection. This is used particularly for the plotting of surveys and is also used to some extent in the charts of the United States Coast and Geodetic Survey. This projection is based upon the development of the earth's surface upon a series of cones, a different one being used for each parallel of latitude. The vertex is in the point where a tangent to the earth at that latitude intersects the earth's axis. The distortion of the figure is less than in any other method of projection and the relative sizes are more correctly preserved.

There is still another method called Gnomonic projection. This system assumes a plane tangent to the earth at some given point. The eye of the observer is located at the center from which point all great circles are projected as straight lines. These charts are not used for general navigating purposes except in the polar regions, where the Mercator system cannot be used. The origin for all chart construction is the system of parallels of latitude and longitude to which all other portions of the chart are referenced. The topographic survey is made for the purpose of determining the characteristics of the land and objects on shore. The hydrographic survey determines the data for the water areas. The depths of bottom are determined by many soundings and the use of the wire drag. This is a modern device by means of which obstructions in the nature of pinnacle rocks can be quickly located. The soundings are plotted on the chart in correct relation to other objects and in the finished chart only such are included which are necessary to give a clear idea of the depths.

The top of the chart is generally north. In addition a compass rose is printed in several places on the chart giving both the true north and the magnetic north with the variation between them at the time the chart was made. As this is a variable quantity the annual rate of increase or decrease is noted from which the variation at any time can be quickly found.

Distances can be measured accurately on charts by the use of the scale which is printed on them or by using the divisions of latitude at the edge of the chart, one minute being equivalent to one nautical mile. The scale mentioned on the chart as 1 to 80,000 refers to the fact that objects on this chart are one-eighty-thousandth of the size of actual object. The use of other scales will follow the same rule.

The objects of next greatest importance shown on the charts are the various buoys and other aids to navigation. It is the custom to indicate by red buoys with even numbers, the starboard side of all channels when they are approached from the sea. The black buoys with odd numbers are found on the port side, also approaching from the sea. This system has been maintained for many years and since the great bulk of ocean commerce approaches the shores from the north and east and continues south and westward along the coast, this arrangement of buoys serves them also. Other buoys found on charts are black and white perpendicular stripes which are midchannel buoys and must be passed close to. Black and red horizontal stripes indicate obstructions with channels on both sides.

(*Continued on page* 84)

MARINE JOINTS

That Transmit Full Power at Full Speed.
Have been giving satisfaction for sixteen years.

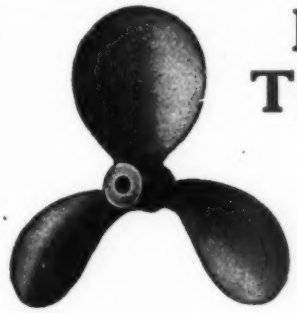
BLOOD-BROS. MACHINE CO.
Pioneer Builders of Universal Joints
ALLEGAN MICHIGAN

Advertising Index will be found on page 126

ELECTRICITY afloat leads the way in Safety, Reliability, Comfort and Economy, as applied to day cruisers, yachts, house boats and commercial vessels.

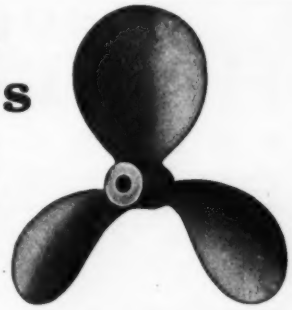
William T. Donnelly, Consulting Engineer
17 Battery Place, N. Y.

"LIGHTNIN." Smallest electric cruiser afloat. Electricity will give you best power for propulsion, clean heat for cooking, bright light at night and will make yachting a pleasure all the time and everywhere you go.



Hyde Turbine Type Propellers

are stocked in every locality. The following is a partial list of firms carrying Hyde wheels. Consult your nearest dealer for information and prompt, courteous service.



PORTLAND, MAINE
Chas. F. Guptill Co., 175 Commercial Street

NEW BEDFORD, MASS.
Hathaway Machinery Co., North Water & Elm Streets

PHILADELPHIA, PA.
Elisha Webb & Son Company, 136 South Front Street

CRISFIELD, MARYLAND
Clarence Sterling & Son, 1104 Main Street

SAVANNAH, GEORGIA
White Hardware Company, 25 Congress Street, West

NEW ORLEANS, LOUISIANA
Stauffer, Eshleman & Company, 511 Canal Street

WILMINGTON, CALIFORNIA
Fellows & Stewart

PORTLAND, OREGON
Oregon Marine & Fisheries Supply Co., 105 First Street

DETROIT, MICHIGAN
Belle Isle Boat & Engine Company, East Jefferson & Parkview

CHICAGO, ILLINOIS
W. L. Masters & Company, 229 North State Street

BOSTON, MASS.
Rapp-Huckins Company, 59 Haverhill Street

NEW YORK CITY
W. C. Disbrow, Jr., 8 Reade Street

BALTIMORE, MARYLAND
Unger & Mahon, Inc., Pratt & Gay Streets

NORFOLK, VIRGINIA
Gas Engine & Boat Corporation, First Street near Front

MOBILE, ALABAMA
Marine Supply Company

HOUSTON, TEXAS
C. L. Bering Company, 1009 Capitol Avenue

SAN FRANCISCO, CAL.
Johnson, Joseph & G. M. Josselyn & Co., 56 Sacramento Street

SEATTLE, WASHINGTON
Pacific Net & Twine Company 1213 Western Avenue

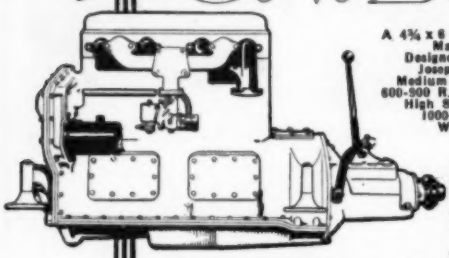
ALEXANDRIA BAY, NEW YORK
Hutchinson Bros.

MILWAUKEE, WISCONSIN
Joys Bros. Company, 201 East Water Street

Write for our booklet "Propeller Efficiency." It contains valuable information. A copy will be mailed on request.

HYDE WINDLASS COMPANY **Bath, Maine**

Performance Satisfies J.V.B.



A 4¾ x 6 Valve in the Head Marine Engine Designed and Built by Joseph Van Blerck Medium Duty 28-40 H.P. 600-900 R.P.M. Wt. 1450 lbs. High Speed 45-60 H.P. 1000-1450 R.P.M. Wt. 1350 lbs.

THIS engine has been installed in Runabouts, Cruisers and Workboats ranging in length from 26 to 65 feet during the past two years. Owners report reliability, fuel economy; quiet, smooth operation, and exceptional control.

This is the engine that the Elco Works of Bayonne, N. J., selected for their standardized 33-foot Cruisette after exhaustive tests.

Let us send you complete information.

We can make immediate shipment of either model.

The J. V. B. Engine Company
Joseph Van Blerck, Pres.
195 Kenmore Blvd., Akron, Ohio

New York Representative: Verrier, Eddy Co., 222 E. 42nd Street.

Boston Representative: Gray-Aldrich Co., 84 Atlantic Avenue.

San Francisco Representative: Wellman Seaver Morgan Co., 201 Rialto Bldg.

Northwestern Representative: Pacific Net and Twine Co., Seattle.

Philadelphia and Atlantic City Representative, Ventnor Boat Works, Atlantic City, N. J.

$1250.00
Complete Equipment
F. O. B Akron, O.

Commercial Engine Representative:
The Sexton Motor Co., 30 Church St., N.Y.C.

New Orleans Representative: Alker-Donovan Co., Inc., 510 Canal Street.

Mysteries of the Chart Explained

(*Continued from page* 82)

Depths of water are shown very clearly by numbers which indicate the depth in feet or fathoms as the case may be, below mean low water. It is well to examine the chart to determine whether the soundings are in feet or fathoms, or even a combination of the two. Some charts are made with depths under twenty-one feet given in feet, while greater depths are given in fathoms Further, these charts would have the depths in feet on tinted areas so that they can be quickly distinguished. Contour lines which run through all depths of the same dimensions are shown on most charts. A line consisting of a particular characteristic dotted line will run through all depths and can readily be followed.

The table below will give the length of a nautical and statute mile on the several scales used in constructing charts, that is. in the scale 1: 1,200 the chart is 1: 1,200 part of the actual linear dimensions in nature (or 100 feet to the inch), equal to 60.8 inches to a nautical mile, and 52.8 inches to a statute mile, and so on. A nautical mile is a minute of an average great circle of the earth, and its length is 6,080 feet, or 1,853.2 meters. A statute mile is 5,280 feet, or 1,609.3 meters.

Scale	Nautical mile Inches	Statute mile Inches
1:1,200	60.803	52.800
1:2,400	30.401	26.400
1:4,800	15.201	13.200
1:5,000	14.593	12.672
1:10,000	7.296	6.336
1:15,000	4.864	4.224
1:20,000	3.648	3.168
1:30,000	2.432	2.112
1:40,000	1.824	1.584
1:50,000	1.459	1.267
1:60,000	1.216	1.056
1:80,000	.912	.792
1:100,000	.730	.634
1:200,000	.365	.317
1:400,000	.182	.158
1:1,000,000	.073	.063
1:1,200,000	.061	.053

When navigating along a rocky coast it is well to give a wide berth to the shore. It is quite possible that rocks exist which do not appear on the chart and the best policy to follow is that instead of considering the coast to be clear unless it is shown to be foul, the contrary should be assumed. When the bottom is uneven soundings will be found to be closely grouped together, when the slopes are gradual fewer soundings are given. Each sounding shown on a chart represents an actual measure of depth and location at the time the survey was made.

Many localities are noted for the frequent and rapid changes of the bottom. Shoals where sand and mud prevail particularly at the entrances of bays and rivers exposed to strong tidal currents and a heavy sea are subject to continual changes. Such localities should be navigated with caution as the chart being used may not have the information established by the most recent surveys.

Frequently dredged channels appear on charts and they are shown by two parallel dotted lines indicating the direction of the improvement. The depth given is generally the one which is maintained by dredging operations and can be relied upon as being correct.

It is apparent that all details and dangers to navigation can-

(*Continued on page* 86)

GENUINE
HARTHAN
TRUE SCREW
PROPELLERS

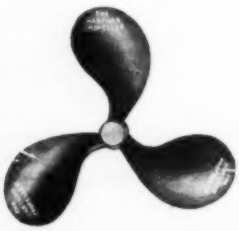
The principle of a True Screw is strictly followed out in the patterns from which all genuine Harthan Propellers are made. This type is known to be the most efficient.

Harthan wheels are made of a special bronze composition, very tough and strong. This allows a very thin blade, the edges of which are brought down very sharp, which, with the extra high polish, reduces the power-absorbing element to a minimum.

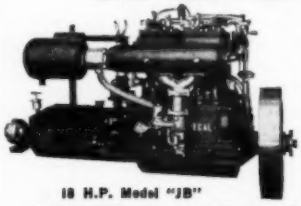
We can supply propellers with two or three blades, in practically any pitch, either right or left hand.

Look for the Trade-Mark on Each Blade
McFARLAND FOUNDRY & MACHINE COMPANY
1100 Willow St.,
TRENTON NEW JERSEY

Representatives
NEW YORK: Topping Bros., 122 Chambers Street.
PHILADELPHIA: F. Vandercherchen's Sons, 7 N. Water Street.



Twenty Years on the Market
REGAL
—FOUR CYCLE—
MARINE ENGINES

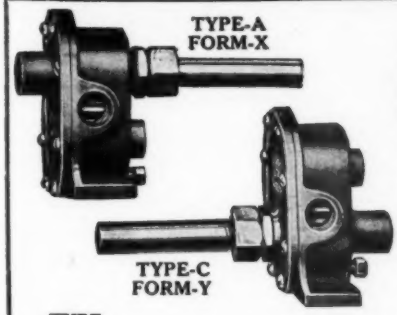


18 H.P. Model "JB"

Built for commercial or pleasure boats. Sizes 2 H.P. —weight 125 lbs. to 50 H.P. —weight 5000 lbs. One to four cylinders. Use gasoline, kerosene or distillate for fuel. Easy to start and may be throttled to a very slow speed.

REGALITE—the new Electric Lighting Plant, 2 h.p. air cooled motor, ¾ k.w. generator. Write for information.

REGAL GASOLINE ENGINE CO.
74 West Pearl Street COLDWATER, MICH.



Oberdorfer Pumps

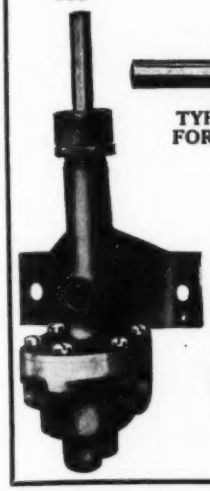
The finest power plant made will not operate properly if it is equipped with an inferior pump, whether it supplies water, fuel or oil.

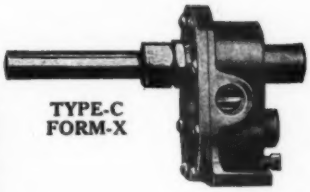
OBERDORFER BRONZE GEARED PUMPS

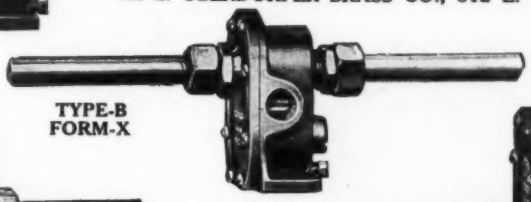
are built especially for marine use—they are made to withstand the hard service encountered in use on board boat—*Oberdorfer Bronze Geared Pumps* are noiseless, automatic, compact and reliable. The supply of water, fuel or oil is governed entirely by the motor—*there is never an over or under supply.* If you have ever had trouble with your pump you will find a world of satisfaction in the trouble-proof Oberdorfer.

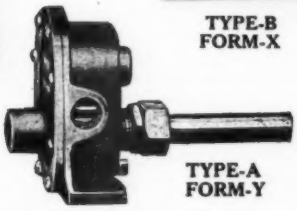
If you own a boat powered with an internal combustion engine you will be interested in our new book on pumps. Your copy is ready for you—it comes *free* on your request.

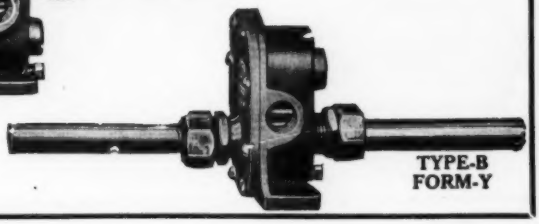
M. L. OBERDORFER BRASS CO., 812 E. Water St., Syracuse, N. Y.





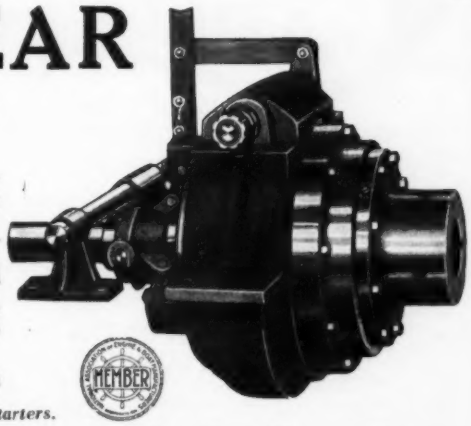






JOES FAMOUS REVERSE GEAR

80%–88% Reverse Speed Ratio



DO you get the full power of your good old engine on the back-up just as you do ahead? A well known Joeism says, "It may be a poor *Rule* that won't work both ways, but it's a good Gear that converts the full power of your engine into maximum speed astern as well as ahead."

Now is a good time to get information on new equipment

Write for catalog of Joes Gears, One-Way Clutches and Safety Rear Starters.

THE SNOW & PETRELLI MFG. CO., 156-B, Brewery St., New Haven, Conn.

Builders of High Grade Engines who extensively use JOES GEARS

Smith-Liberty 12 Cylinder
New London Ship & Engine Co.
Dodge "Burnoil" Engine Co.
Mid-West Engine Co.
Kahlenberg Bros. Co.
Clay Engine Co.
Venn Severin
Gulowsen-Grei Engine Co.
Mianus Motor Works
Buffalo Gasoline Motor Co.
Gaith Motor Co.
Bridgeport Motor Co.
Camden Anchor-Rockland Machine Co.
Gray Motor Co.
Hubbard Motor Co.
Lockwood Ash Motor Co.
Mecco Engine Co.
Roberts Motor Mfg. Co.
Wright Machine Co.
Anderson Engine Co.
Dunn Motor Works
Evansville Gas Engine Co.
Fairbanks-Morse Co.
Frisbie Motor Co.
Hall-Scott Motor Car Co.
Missouri Engine Co.
Peerless Marine Motor Co.
Red Wing Motor Co.
Regal Gasoline Engine Co.
Gray & Prior Machine Co.

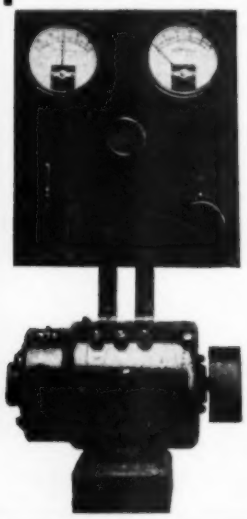
Agents Who Are Proud To Represent JOES GEARS

New York—Sutter Bros., 44 Third Ave., Service Station Foot of East 92nd St., Brooklyn.
Philadelphia, Pa.—W. E. Gochenaur Mfg. Co., 631 Arch St.
Detroit, Mich.—Henry H. Smith & Co., 334 Jefferson Ave.
Chicago, Ill.—W. L. Masters & Co., 229 North State St.
New Orleans, La.—Arthur Duvic's Sons, 130 Chartres St.
Southern California—Fellows & Stewart, Inc., Wilmington
San Francisco, Calif.—A. G. Hegben, 440 Market St.
Seattle, Wash.—Pacific Marine Engine Co.
Toronto, Canada—A. R. Williams Machinery Co.
Montreal, Canada—The Pyke Motor & Yacht Co.
Newfoundland—John Barron & Co., 241 Water St., St. Johns
England—J. King & Co., 10 Church Row, Limehouse, E. London
Norway—Arendahl Motor & Machine Co., Arendahl
Turkey—Societe Generale d'Automobiles, Constantinople.

TRADE
EUKERLIGHT
MARK

For Motor Boats, consisting of **Dynamos and Switchboard** with **12 Volt Storage Battery,** which can also be used to start the engine.

Plant Type F



has a capacity of 20 lamps of 4 candle power or 10 lamps of 15 candle power. Price $100.00 F. O. B. Factory. Export price $115.00.

All apparatus fully guaranteed. Write for prices for larger plants, for 16 and 32 volt systems.

INTERNATIONAL BATTERY CO.
Grand Rapids, Mich.
U. S. A.

"The CAPITOL"

MARINE UNIT POWER PLANT
COMPLETELY ENCLOSED — COMPLETELY EQUIPPED

IF you own or are planning the kind of a runabout or cruiser that deserves a really excellent power plant, you should know more about the Capitol.

There isn't a smoother, quieter running marine engine. Vibration and noise are eliminated by perfect balance, wide-faced helical-cut timing gears, force feed lubrication, ball bearing universal joint, three point suspension, and many other improvements.

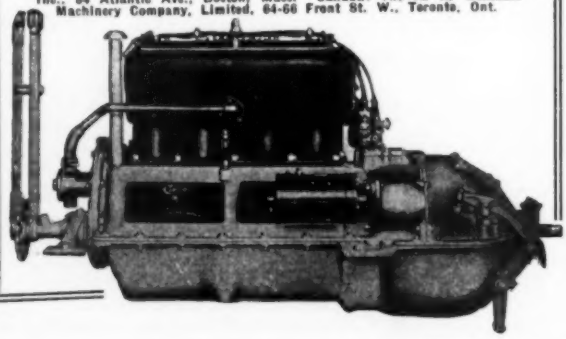
Delco ignition, Atwater-Kent two-unit starting, lighting and generating system, Willard storage battery, Stromberg or Schebler carburetor, instrument plate and all other necessary equipments of highest grade.

Bore 4¼" Stroke 5½"
High Speed Model 60-65 H. P. at 2000 R. P. M.
Medium Speed Model 30-34 H. P. at 1000 R. P. M.

Write today for complete description and prices

AUTO ENGINE WORKS, St. Paul, Minn., U. S. A.

Eastern Representatives: Ventnor Boat Works, Atlantic City, N. J.; Fred C. Duclon, Alexandria Bay, Jefferson Co., N. Y.; Gray-Aldrich Company, Inc., 84 Atlantic Ave., Boston, Mass. Canada: The A. R. Williams Machinery Company, Limited, 64-66 Front St. W., Toronto, Ont.



Mysteries of the Chart Explained

(*Continued from page* 84)

not be shown on small scale charts, therefore it is wise when approaching land or a dangerous spot to use the largest scale charts of the section available. A small error on a small scale chart means a displacement of large fractions of a mile, while a similar error on a large scale chart means only an error of location of a few yards.

Buoys as shown on the chart are intended to be at the position indicated. Too much reliance should not be placed on buoys maintaining their position. In exposed locations they are liable to be dragged from their position by ice or storms and their position should be used with caution. Similarly lighted buoys and other unwatched lights are liable to become extinguished or out of adjustment and are not to be implicitly relied upon.

The lights shown on the chart and the information concerning them given in the light lists on their visibility are computed for a height of fifteen feet for the observer's eye. The glare of the powerful light is often seen far beyond the limit of visibility of the actual rays of the light. Refraction at times may cause a light to be seen farther than under ordinary circumstances. The range of visibility increases with the height of eye and it must be remembered that it may often be possible to see a light from the masthead which is not visible on the deck.

The plane of reference for all soundings on charts is the mean of all low waters. There may be times when the low water is lower than the mean. It will also happen that the effect of the wind will cause the water to fall below the plane of reference. Especial caution is necessary in navigating coasts where the tidal range is very great. Although the general set of the current is along the shore, there will be indrafts into bays and inlets.

Current arrows on charts show only the mean or usual direction of the tidal current. It must not be assumed that the direction of the current may not vary from that indicated by the arrow. In the same manner the velocity of the current varies constantly, the rates given on the chart being a mean value.

The charts of the Great Lakes and other inland waterways are published by the War Department Corps of Engineers, with headquarters at United States Lake Survey Office, Detroit, Michigan. Their charts differ somewhat from the Coast and Geodetic Survey charts. They show the courses and distances between various points and harbors on the chart. The buoy system is in general similar to the coastwise charts, although the symbols used to indicate the buoys are not identical. Depths of water are shown on tinted areas up to 21 feet. Depths greater than this are given in fathoms on untinted areas. Useful information concerning the heights of water, tabulation of magnetic variation, lists of dry docks, and other data are printed on them. All lighted aids are emphasized by a small yellow circle printed over them which causes them to stand out very clearly on the chart.

Three departments of the Government issue charts, as follows: The Coast and Geodetic Survey of the Department of Commerce publishes from its surveys charts which are suited to the purposes of navigation, commerce, and public defense. The Hydrographic Office in the Navy Department has charge of the duplication of charts and plans issued by other nations, and the publication of charts by the Navy of coasts not under the jurisdiction of the United States; the Corps of Engineers in the War Department issues charts of the Great Lakes.

There are four series of charts on the Atlantic, Gulf, Pacific, and Philippine Island Coasts, the first series consisting of sailing charts, which embrace long stretches of coasts—for instance, from the Bay of Fundy to Cape Hatteras. These are intended to serve for offshore navigation, or between distant points on the coast, as for example, Portland, Me., to Norfolk, Va. They are prepared for the use of the navigator in fixing his position as he approaches the coast from the open ocean, or when sailing between distant coast ports. They show the offshore soundings, the principal lights and outer buoys and landmarks visible at a great distance.

The second series is known as the general charts of the coast. They are on a scale three times as large as those of the first series, and embrace more limited areas, such as the Gulf of Maine, etc. They are intended for coastwise navigation when the vessel's course is mostly within sight of land, and her position can be fixed by landmarks, lights, buoys, and soundings.

The third series comprises the coast charts, which are constructed on a scale five times as large as that of the second series. One inch on these charts represents about one nautical mile, or one and one-seventh statute miles. They are intended for close coastwise navigation, for entering bays and harbors, and for navigating the large inland waterways

The fourth series embraces the harbor charts, which are constructed on large scales intended to meet the needs of local navigation.

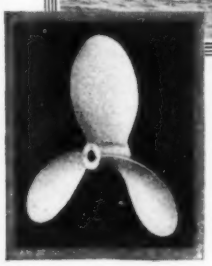
Advertising Index will be found on page 126

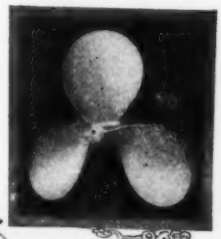
Columbian Bronze Propellers

Win in the Block Island Race

"SPENDTHRIFT II," Mr. W. R. Halsey's 45-Footer, designed by C. D. Mower, built by the N. Y. Yacht, Launch & Engine Co. and powered with a Van Blerck engine won both time and handicap prize in the larger class which raced to Block Island July 9th.

Mr. H. L. Haslinger's Sterling powered "Kodak IV" won in the Class B Division.





Both Boats Were Equipt With Columbian Bronze Propellers

Your boat will be a faster boat, a more efficient boat if you equip it with a Columbian Bronze Propeller. Write for catalog to-day.

COLUMBIAN BRONZE CORPORATION

522 Fifth Avenue **New York City**

For New York Local Sales Only: 44 Third Avenue

THE JOHNSON MARINE REVERSE GEAR

The Four Exclusive Johnson Features

1. **The well-known Johnson Friction Clutch on both forward and reverse drives.**
2. **Special hardened alloy steel in all gears and shafting.**
3. **Completely equipped with radial and thrust ball bearings made integral with the gear itself.**
4. **Entirely enclosed in an oil tight case.**

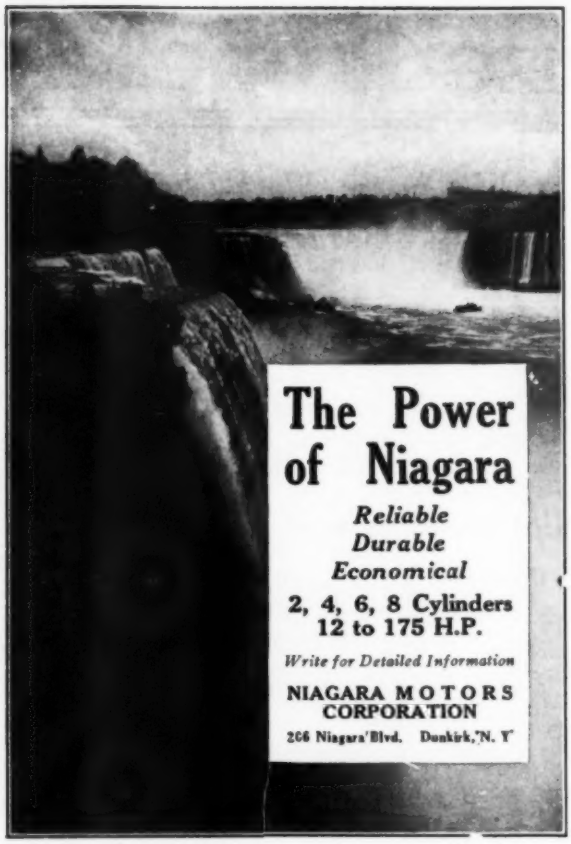
Each one of these features is original with the Johnson Gear, and represents a definite achievement in improved reverse gear construction. Combined, they account for the marked superiority of the Johnson Gear,—its smoothness of operation, its economy of power, and its long unfailing service.

FOREIGN AGENTS:

England: The Efandem Co., Ltd., 22 Newman St., Oxford St., London, W. 1. **Sweden:** Wilhelm Sonesson & Co., Malmo **Norway:** Oscar C. M. Knudsen, Odinsgate 4, Christiania. **Denmark:** Wilhelm Sonesson & Co., Copenhagen. **Holland:** Gebrs. Willink, Weteringshans 109, Amsterdam. **France:** Anciens Etab. Glaenzer & Perreaud, 18 Faubourg du Temple, Paris. **Switzerland:** C. Jules Megevet, 7 Rue de Malatrex, Geneva. **Italy:** Cantiere Navale Gallotti, Posillipo 54, Naples. **Spain:** Carlos Wertheim, Barcelona. **Australia:** Edwin Wood, Pty., Ltd., 231 Elizabeth St., Melbourne, Victoria. **Brazil:** J. H. Lowndes Son & Co., Rua de Sao Pedro N. 61, Rio de Janeiro. **Argentina:** Juan Baratini, Calle Montes de Oca, Tigre. **Ecuador:** Gonzales-Rubio & Co., Quayaquil.

Write Dept. 25 for our Catalog.

THE CARLYLE JOHNSON MACHINE CO. MANCHESTER CONN



"JASCO"
SAFETY FIRST
TANK

UNLESS you *know* that your tank is absolutely leak-proof you can never *feel certain* that you are securely safeguarded against loss by fire and explosion.

The "Jasco" Tank is more than a mere container—it's a positive protector of life and property. Made of the finest seamless drawn steel—tested and proved—it will not leak no matter how rough the service. A "Jasco" Tank will make any boat—*your* boat—a better boat. Send for booklet and detailed information.

JANNEY, STEINMETZ & COMPANY
MAIN OFFICE, PHILADELPHIA
New York Office, Hudson Terminal Building

"JASCO" SAFETY FIRST TANKS

Sea Horse Wins Express Cruiser Race

(*Continued from page* 24)

Sea Horse is a twin screw cruiser, equipped with two Miami Twelve engines, designed and built by the Allison Engineering Company, Indianapolis, Ind. Aye Aye Sir also has one of these motors. The Miami Twelve is a twelve cylinder 60 degree Vee type, with overhead camshaft and four valves per cylinder. The bore and stroke is 5½ x 7½. It is rated at 400 h.p. at 1,300 revolutions per minute.

The crankshaft is hollow and of the seven bearing type. It is 3½ inches in diameter. The main bearings are 2½ inches long with the exception of the center main, which is 4 inches long, and the rear main, which is also 4 inches long. The crank pins are 3 3/16 inches in diameter and 3⅜ inches long.

The connecting rods are of the forked pattern of conventional I-beam section, with a length of 15 inches between centers.

The pistons are of aluminum alloy, equipped with floating piston pins 1⅝ inches in diameter. Four piston rings are used above the piston pins. The bottom ring is beveled to act as a wiper ring, and an oil groove is cut in the pistons and drilled so as to return the oil back into the crankcase. The lower half of the crankcase is of cast manganese bronze and carries the main bearings. The upper half of the crankcase is of cast aluminum alloy, and supports the cylinders. Large hand-holes insure ease of inspecting and adjusting the main bearings and connecting rod bearings.

The cylinders are cast in blocks of three, of close-grain cast iron. The exhaust valves seat directly in the cylinderhead, the intake valves are in cages. Ample water space is provided to insure perfect cooling. Each cylinder has two exhaust valves and two inlet valves, that are 2 inches in diameter in the clear with 30 degree seats. The intake valves have a lift of 7/16 inch, and the exhaust valves lift ⅜ inch. Double valve springs are used on all valves. Each pair of valves is operated by a rocker arm, one end of which carries a roller operating on the camshaft.

The camshafts are of the overhead type and driven with bevel gears and vertical shafts at the front end of the motor.

The water pump, the oil pump and the magnetos are located at the front end of the motor, and are driven by spiral gears from the crankshaft.

Ignition is by means of two six cylinder two spark magnetos, firing two plugs in each cylinder. The spark advance is obtained by sliding the spiral gear on the splined cross shaft, which drives the magnetos.

Lubrication is of the full pressure feed type, operating with a dry sump. The oil pump is of the gear type. A pair of gears draws oil from the oil tank and pumps it into the hollow crankshaft, from which it is distributed to the camshaft, and to all the bearings. Another pair of gears draws the oil from the sump and returns it through an oil cooler to the tank. The oil is strained in the oil tank, passing through two removable strainers of large size.

The water pump is of the gear type, especially designed for high capacity, and delivers water to a pan on the bottom of the crankcase. The water comes from this pan, and is delivered to the cylinders. The water outlet from the cylinders is connected with the water jacketed exhaust manifold. Thermostatic control with manual regulating valve is provided on each bank of cylinders.

Two Zenith carbureters of the Liberty type serve to feed the twelve cylinders. The gasoline is strained through a special duplex strainer, so that one strainer screen may be removed and cleaned without interfering with the operation of the engine. Carbureter air intake is through a large cage of fine mesh screen to minimize the danger from backfire. A crankcase breather is piped into the carbureter air intake in order to draw any fumes back into the engine.

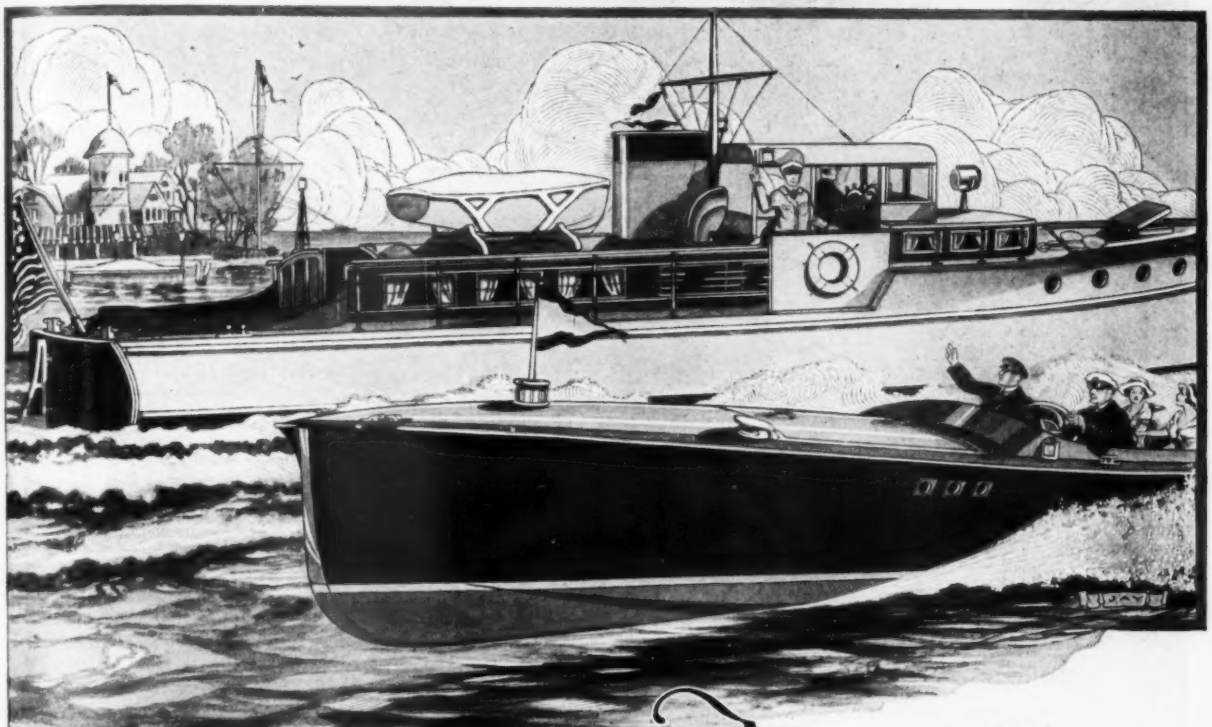
The clutch and reverse gear is especially designed for this motor, and is built into the engine. A forged steel flywheel is bolted to the rear end of the crankshaft ahead of the clutch and reverse gear. The reverse gear is of the planetary type. The clamping band is operated by means of a double screw and nut arrangement, which insures positive engagement and disengagement. The forward clutch is of the multiple disc type, using alternate steel and bronze discs of generous dimension, running in oil. The entire reverse gear and clutch assembly is lubricated by pressure feed from the engine. A brake is provided to hold the propeller shaft against clutch drag when idling. The propeller thrust is carried by two Hess-Bright deep groove ball bearings.

A Leece-Neville starter and generator is used. The generator is lolated in the Vee at the front end of the motor. The starter is mounted over the reverse gear housing and operates a Bendix drive through gearing. The system is of 32 volts.

All moving parts of the motor are covered to insure safety and cleanliness.

In the next issue of MOTOR BOATING we will publish a number of illustrations of this new power plant.

Advertising Index will be found on page 126



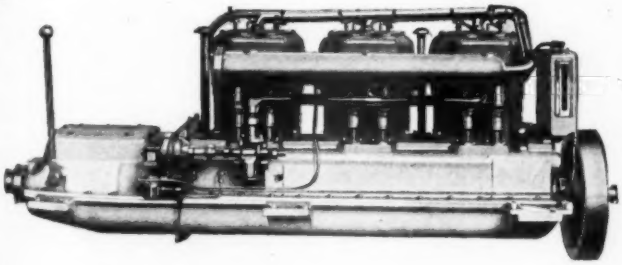
Versatility

Wisconsin

CONSISTENT

Marine Motors

EM 4 x 5	4-cylinder	
AM 4¾ x 5½	4	"
MM 5¾ x 7	4	"
GM 4¾ x 5½	6	"
PM 5¾ x 7	6	"



WISCONSIN methods of construction have been perfected to permit the manufacture of marine motors for any service. There is nothing to hinder the owner of a boat from specifying a Wisconsin Motor, whether that craft be a speedy runabout, a large cruiser, or engaged in commercial activity.

Wisconsin, through their ready adaptability to boats of any kind, for any service, offer a range of power that will satisfy. Coupled with this is the outstanding quality of consistent performance—which is synonymous with their name—and the unusual fuel economy.

Ready accessibility to all parts assures freedom from minor troubles, and the generally compact assembly, carefully combined with a sturdiness that has registered under severe weather conditions labels them the ideal all-around power plant for marine service.

Wisconsin powered boats give their owners more real value in returns than is usually found in units that produce a like range of power.

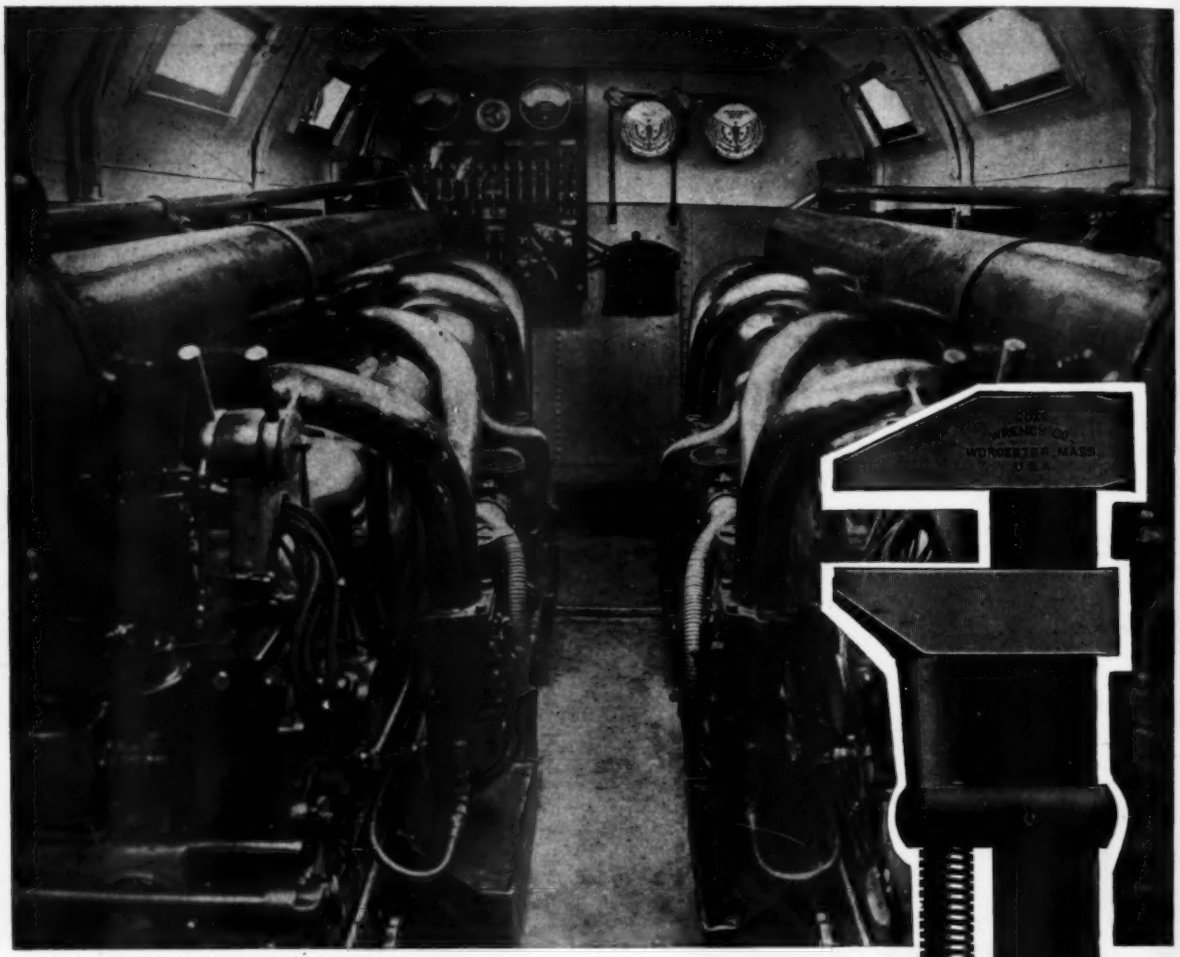
Send for the Wisconsin Marine Catalog

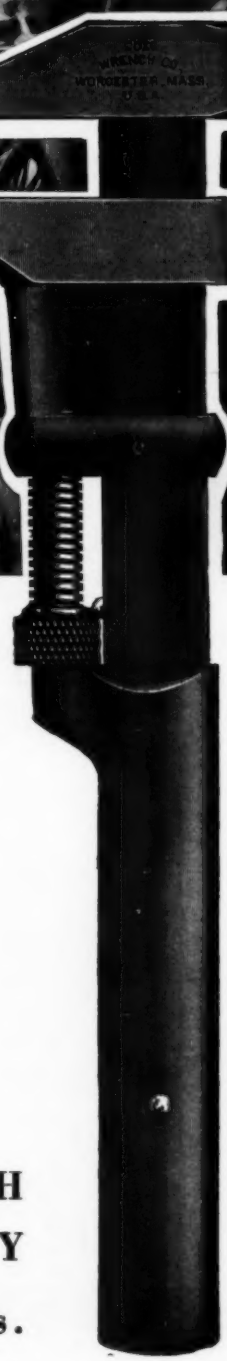
Wisconsin Motor Mfg. Co.
Milwaukee Wisconsin

DISTRIBUTORS

T. M. Fenner, Factory Representative, 21 Park Row, New York, N. Y.

Earl P. Cooper Co., Los Angeles, Calif.
Chandler-Dunlap Co., Seattle, Wash.





Power, Strength, Coes Wrenches Quality, Ability and Satisfaction

You choose your power-plant after great deliberation and much thought.

It Must be the Best.

Then a set of COES WRENCHES and you have all that money can buy.

Eight sizes, all steel, from 4" to 21" and made for real work. Ask your dealer.

TRADE MARK
REG. U.S. PAT. OFF.
NO 64696
Coes

COES WRENCH COMPANY

Worcester, Mass.

Advertising Index will be found on page 126

DIESEL ENGINES for PLEASURE YACHTS

IDEALIA, 84′ x 14′ x 3′, is powered with a 120 H.P. N E L S E C O Diesel engine which drives her 14¼ miles per hour, using only six gallons of fuel oil per hour. It would take 15 gallons of gasoline to produce the same power, *at approximately ten times the cost.*

Everyone concedes the advantages of Diesel engines for commercial boats. The case of Idealia and other successful installations prove that N E L S E C O engines are equally suitable for substantial pleasure yachts and large cruisers.

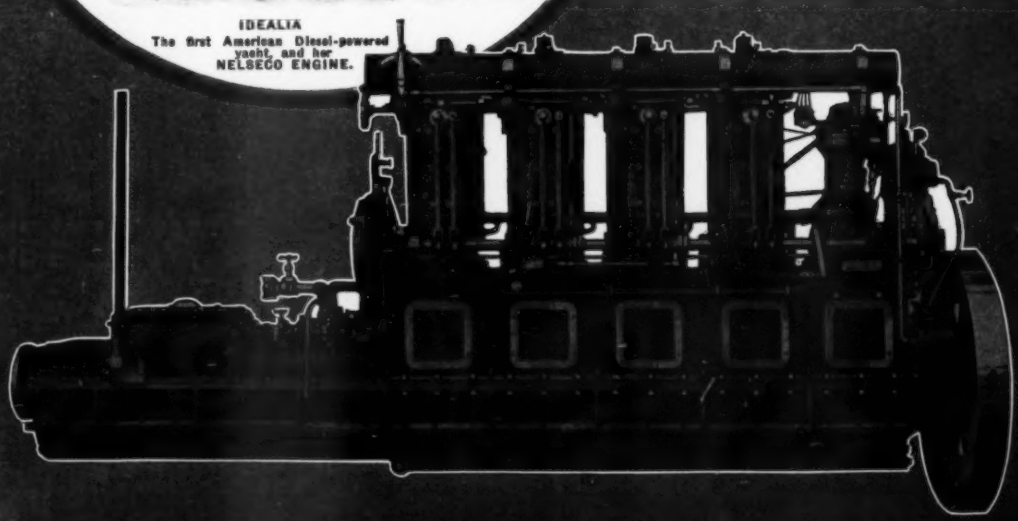
The broad experience of this company, the first to build a Diesel Engine in America for marine use, is at the disposal of those who are interested in investigating or planning a Diesel powered boat. Our engineers will take pleasure in working out your power problem if you will put it up to them. 120 B.H.P. to 3400 I.H.P—over 150,000 B.H.P. in use or on order.

Let us send you complete information.
Give us the details of your boat.

THE NEW LONDON SHIP & ENGINE COMPANY
Groton, Conn., U. S. A.

Pacific Coast Office: 402 Exposition Bldg., San Francisco, Calif.

IDEALIA
The first American Diesel-powered yacht, and her NELSECO ENGINE.

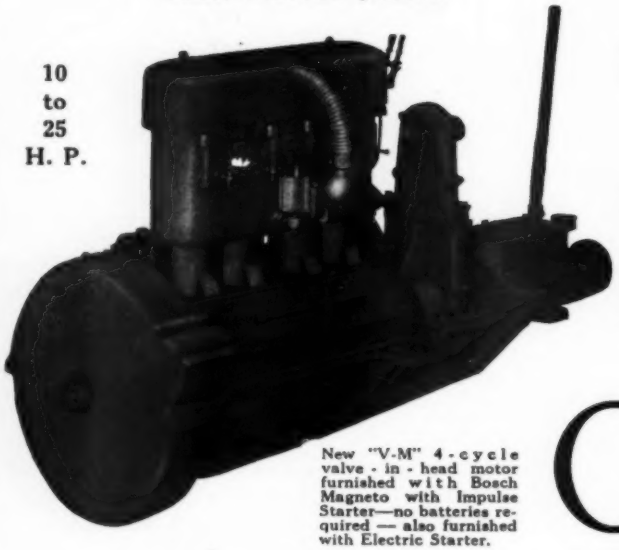


Gray Marine Motors for 1921

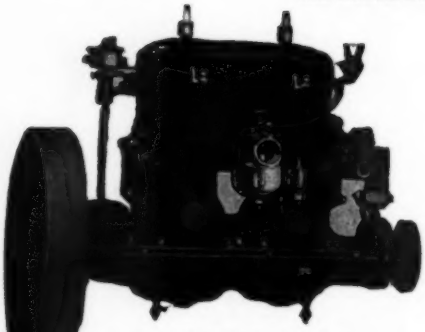
"the engine with the Big crank shaft"

NEW PRICE $550.00

10 to 25 H. P.



New "V-M" 4-cycle valve-in-head motor furnished with Bosch Magneto with Impulse Starter—no batteries required — also furnished with Electric Starter.



6 to 8 H.P. Double Cylinder Model "U" Furnished With or Without Reverse Gear

Selected for Canoes, Row Boats and Small Launches. 3-8 H.P. 2-cycle Gray Motor. Standard the World Over.

Your DEPENDABLE Power Plant for Work Boat, Cruiser or Runabout.

The New York State Barge Canal tried out 4 model "V-M" Gray Motors in 1919 with other leading makes. Last year they put in commission 35 more Grays.

OVERHEAD valve marine-motors are acknowledged to be of greater efficiency and power than other types and in the Gray the ultimate of valve-in-head marine motor perfection has been attained.

The Gray is designed to operate on either gasoline or kerosene, it cannot backfire, it burns the fuel keenly with practically no carbon, soot, smoke or odor and lubrication troubles are unheard of in the Gray.

Our Hot-Spot Cylinder Head gasifies thoroughly the fuel used and renders it completely combustible.

Gray Two-Cycle Motors are built in models from 3 to 8 h. p. Gray Four-Cycle Motors are built in three sizes, 10 to 50 h. p. Write for FREE literature.

Leading Boat Builders for upwards of 15 years have specified Gray Engines as standard equipment for their boats.

GRAY MOTOR COMPANY 2106 MACK AVE., **Detroit, Mich.**

Advertising Index will be found on page 126

For Racing—Cruising—Working Boats

STANDARD
Reverse Gears

IT doesn't matter what kind of service your boat is built for—of course you want the benefit of all the power your engine develops. For power developed means fuel burned, and fuel means money.

The Standard Reverse Gear transmits every bit of your engine's power. Its big smooth-acting clutch has excess capacity to carry any load you'll ever place on it. You can adjust the clutch from the outside while the engine is running. A ball thrust bearing built into the case carries the load without friction loss.

The internal gears are amply large with wide sturdy teeth, machined so accurately that they run quietly first, last and all the time. The bearings are large enough to defeat wear and fit close after years of service.

Aside from the quality of its materials and workmanship the crowning feature of the Standard Reverse Gear is its attractive oil tight case. It permits running the gear in a constant bath of oil that insures perfect lubrication and minimum depreciation through wear.

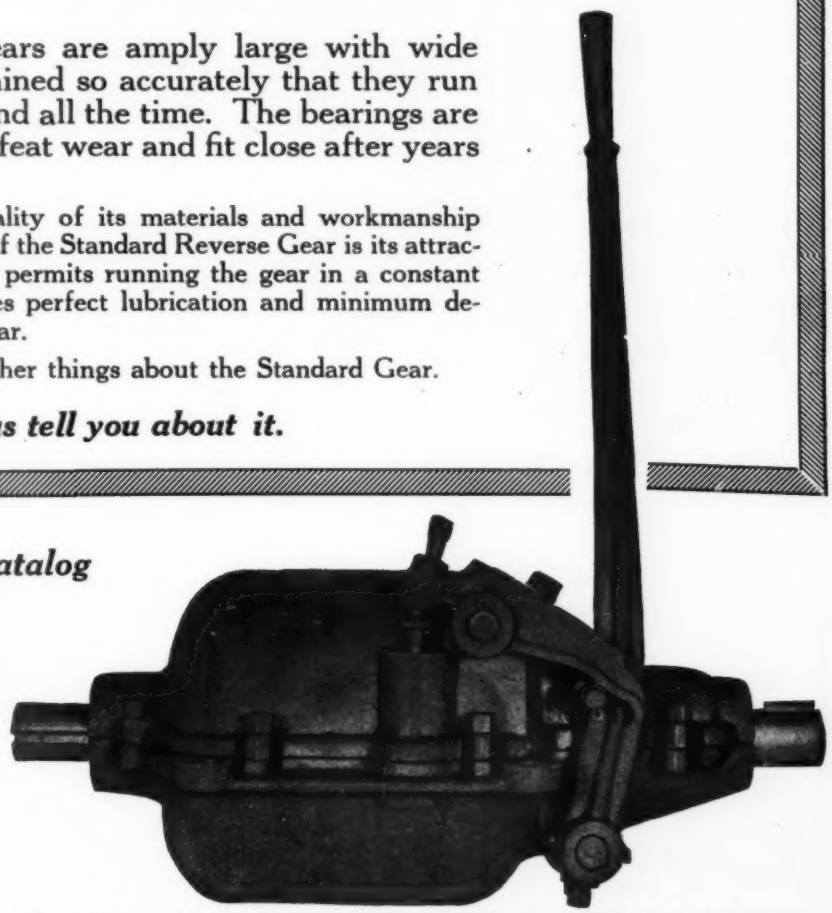
You'll like many other things about the Standard Gear.

Let us tell you about it.

There is a Standard Gear for every size of engine and every type of boat,—pleasure boat, runabout, cruiser, speed boat or heavy work boats.

We can also supply the demand for high speed gears for Hall Scott and other aviation motors and high speed engines.

Write us about your requirements.



Write today for catalog and prices

STANDARD GEAR CO.

5928 Commonwealth Avenue

DETROIT, MICH., U. S. A.

ANNOUNCING *the* 1922

Le Roi Marine Unit Equipped with carburetor, ignition, 2 unit starting and lighting system, reverse gear and everything ready to run. Completely enclosed, compactly arranged and built by a company having a reputation for making dependable engines since 1913.

The Le Roi 15 H. P. engine has an over-size crank shaft and very generous bearings. All rotating and reciprocating parts are carefully and accurately balanced—something new in marine service. This insures absence of vibration and unusually long life. An international reputation for efficiency and fuel and oil economy means low operating costs for you.

One Size Engine only is made by this company. A capacity of 75 engines daily makes possible use of precision machinery resulting in high quality engines at comparatively low prices.

Let Us Tell You more about this completely equipped 15 H.P. MARINE UNIT which sells for $575.00 F. O. B. Milwaukee. It is guaranteed—efficient—economical—dependable.

We invite Manufacturers, Distributors, Dealers and Users to send for our circular. Good territory is open to responsible dealers.

LE ROI COMPANY

MITCHELL ST. AND 60 TH. AVE.
MILWAUKEE, WIS.

CABLE LE ROI MILWAUKEE

Advertising Index will be found on page 126

Experience Chooses

RAJAH

SPARK PLUGS

A Plug for Every Engine

Make sure that your new plugs are Rajah—get the best while you are at it. They cost no more than ordinary plugs and they are better, as thousands of boatmen can testify.

Rajah Plugs have been marine favorites for twenty years. Many boatmen will use no other. Countless races stand to their credit.

Last month at the Buffalo race meet Rajah Plugs in the Murray & Tregurtha engines of Orlo III established new world's speed records for two mile lap and fifty mile heat during the Fisher-Allison Trophy Race.

Several manufacturers of high grade marine engines have used Rajah Plugs for years as standard factory equipment. The leading marine engine and supply dealers sell them because they always satisfy and make *ignition absolutely sure.*

Waterproof
Shockproof
Breakproof
All Threads

DOMESTIC PRICES

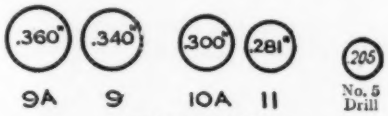
Standard Rajah Plug	**$1.00**
Giant Rajah Plug	**1.25**
Waterproof Rajah Plug	**1.50**
Rajah Safety Nipple	**.15**
Extra Rajah Terminals	**.10**

Rajah Solderless Terminals

Time savers and money savers for the engine user, dealer and builder. For years Rajah Terminals have been used in great quantity by leading manufacturers of automotive engines and electrical equipments. Try them once and you will never be without them.

Thrust Clip **Hook Clip** **Ring Primary** **Assembly to Cable**

To properly attach terminal cut back cable covering and bare wire about 3/16". Insert cable into ferrule with wire coming through small hole. Screw down pointed part, first centering wire in small hole. When properly assembled the strands of wire will spread evenly in bottom of ferrule and it will be impossible to pull terminal from cable.



9A **9** **10A** **11** **No. 5 Drill**

Standard Cable Sizes:
5 M.M., 196 **7 M.M., 275** **9 M.M., 354**

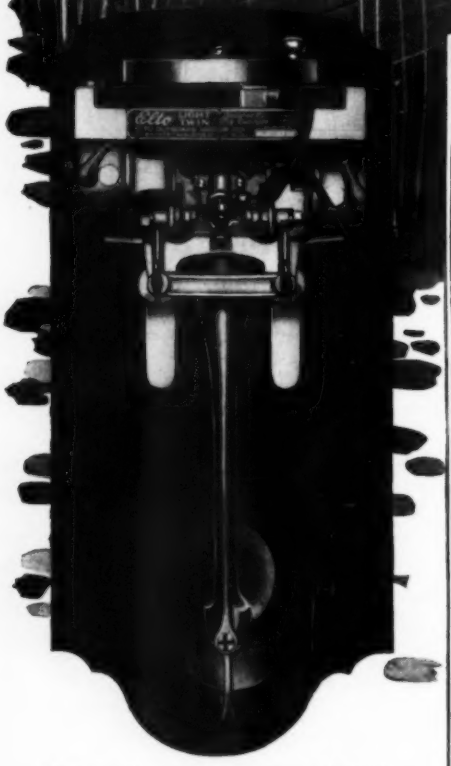
These collars furnished with all thrust and hook clip terminals so they can be used with any spark plug.

If your dealer does not have genuine Rajah Plugs and Terminals, send us his name, tell us the size you want, and we will see that you are supplied, postpaid. If you are not sure of the size, tell us the name of your engine.

Rajah terminals save time and trouble. Fit any plug

Thumb Nut — with all Rajah plugs unless Ball or Stud type preferred **Regular Fits any size cable** **Thrust Hook Furnished with ferrules to fit any size cable** **Primary Ferrules to fit cables up to ½"** **Keeps connections dry Protects against shocks Fits any plug or coil**

Manufactured by Rajah Auto-Supply Co., Bloomfield, N. J., U. S. A.



"Comfortably Portable"
Weighs 46 lbs.

The Safe Motor for the Hunter

A motor which tilts automatically when striking unseen obstructions in the shallow and precarious waters where hunting abounds—a motor whose underwater design insures freedom from weeds and whose ignition system insures a quick, easy and positive start in damp or cold weather—that is the sportsman's ideal of safety in an outboard motor.

Thanks to Ole Evinrude's native ability as a designer, supported by his sportsman's instincts, all these advantages are available to the hunter who chooses the ***Elto*** Light Twin—Mr. Evinrude's latest motor manufactured by his new organization, the Elto Outboard Motor Co.

Because of its light weight, perfect mechanical balance and wonderfully smooth performance, the ***Elto*** is safe alike on the lightest and frailest of hunting skiffs and rowboats.

Because of its novel and efficient underwater exhaust, it quietly propels its boat back and forth among the hunting grounds in those "wee" morning hours without the least disturbance.

The ***Elto*** with its full 3 H.P. is equal to the demands of stormy and rough weather, for it abounds in power for any emergency. Its self-contained automatic tilting device insures safety to both motor and boat in shallow or dangerous waters.

Weighing but 46 pounds and with its rudder folded for carrying, the ***Elto*** is so snug and positively compact, either in its carrying case or otherwise, that "comfortably portable" aptly describes this ideal rowboat motor.

The ***Elto*** is but another proof of the genius of Ole Evinrude the originator of the outboard motor.

Complete details of this remarkable motor may be found in the Elto booklet. Write for it now.

ELTO OUTBOARD MOTOR CO.
Ole Evinrude, Pres.
MFRS. HOME BLDG. Dept. F MILWAUKEE, WIS.

Elto Carrying Case

Elto
LIGHT TWIN OUTBOARD MOTOR

Advertising Index will be found on page 126

SKANEATELES BOATS

"The standard by which others are judged"

AT the close of a most successful year we have a few of the following models of boats on hand and, sooner than carry them over for another season we are offering them to boat buyers at greatly reduced prices.

This is the first time in our history of twenty-eight years of business we have had an unsold boat on hand after August 1st of any business year. The sale price includes all war tax of ten percent and all crating charges.

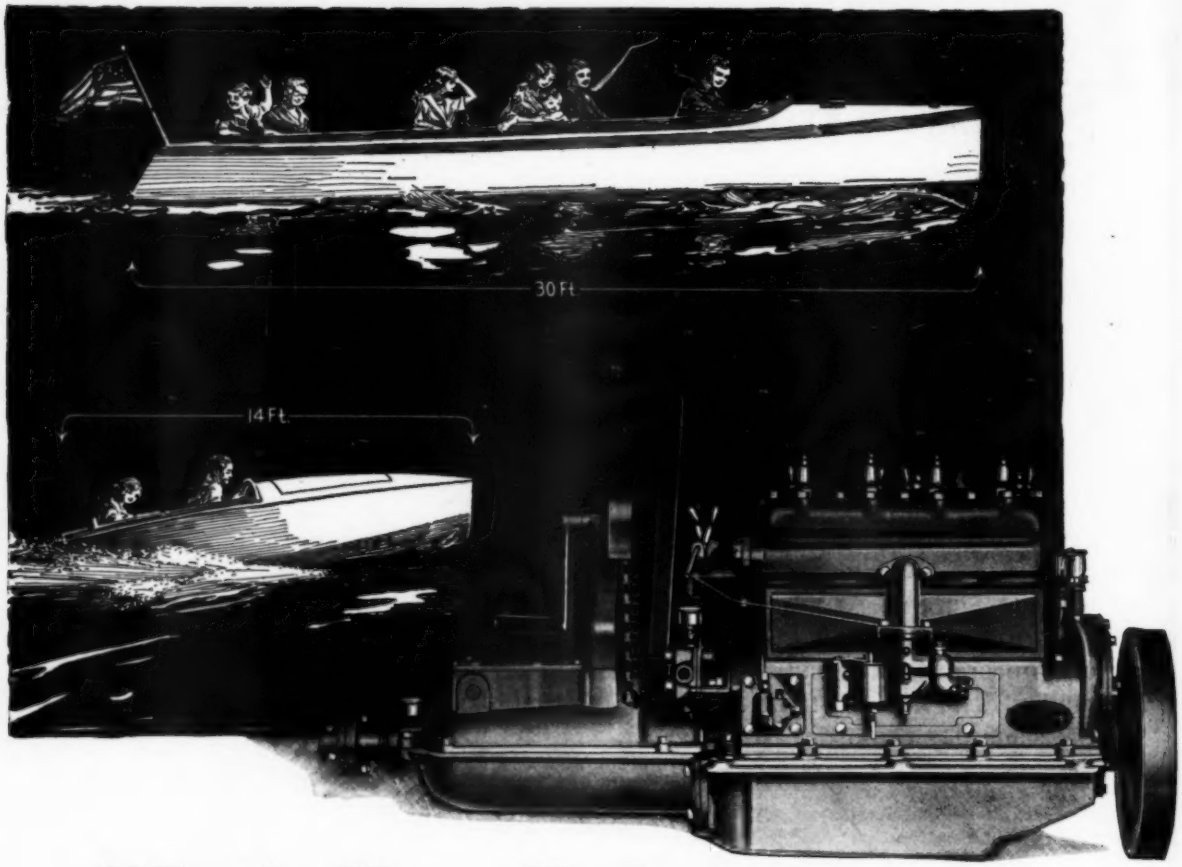
All boats, with the exception of our Baby Cruisers, are finished in the natural wood with best spar varnish. In some instances there are only one or two boats of a model, and we urge customers who telegraph us for rush shipment to name a second choice. Boats with the exception of cruisers will be shipped subject to examination, C.O.D., if so desired. Every boat carries our unconditional guarantee back of it as the best boat in the world for the money. The buyer is to be the judge in every instance. Boats will be shipped the same day the order is received.

Model	Length	Beam	Regular Price	Cleanup Price
		ST. LAWRENCE SKIFFS		
2	16	42	$168.50	$125.00
3	16	42	146.50	115.00
4	16	42	124.50	98.00
5	14	42	102.50	75.00
		SQUARE STERN OR TRANSOM BOATS		
6	14	42	110.20	85.00
17	16	44	141.00	110.00
		LEISURE HOUR SAIL BOATS		
Lap Strake	16	48	252.50	215.00
Smooth Skin	16	48	307.50	250.00
		OUTBOARD MOTOR BOATS		
	16	48	181.00	145.00
		DINGHIES		
	8	44	253.00	168.50
	10	48	278.50	168.50
		SKANEATELES BABY CRUISERS		
"Without Power"	18	6 ft.	825.00	595.00

SKANEATELES BOAT & CANOE CO.

SKANEATELES, N. Y.

"Builders of the finest row boats in the world"



What's *Your* Choice?

WHEN you think of any size or type of motorboat—from the speedy runabout to the big family launch—think of the UNIVERSAL ENGINE in connection with it.

For then you'll have a boat to be *proud* of.

The UNIVERSAL gives you a "purr" of power—so steady, so smooth, so quiet, that all your ideas of motorboating are lifted into a new realm of enjoyment.

It gives an 18 mile speed or better to the small autoboat. It provides a 10 to 15 mile pace for larger boats, according to length and type. It throttles down to a pace for trolling.

And whatever size or type of boat that you use it for, the UNIVERSAL gives a *dependability* in operation that has made its reputation circle the globe. From Oshkosh to Tokio, this one size, one standard 9-12 h.p. four cylinder marine engine has earned a record for reliability that has few equals.

The UNIVERSAL is adapted to 80% of all sizes and types of motorboats—auto types, speed boats, launches, dories, fishing boats, etc.—from 14 to 30 feet in length. It is provided with reverse gear or electric self-starter where desired.

You'll never be satisfied with an ordinary engine when you learn what the ownership of a UNIVERSAL means. Its cost is surprisingly reasonable. Step up into the Universal class this season—it'll be the best step you ever took for sheer down-right pleasure. Get the Universal Catalog today and get the facts.

Universal

4-Cyl.
9-12 h.p.
MARINE MOTOR

UNIVERSAL MOTOR CO. Oshkosh, Wis.

Not connected with any other firm using the name "Universal"

Manufacturers, also, of the Universal 4 k.w. and 2 k.w. Electric Plants for lighting boats, summer camps and homes, farms, etc. Send for catalog.

Advertising Index will be found on page 126

Here-There-Everywhere

You Find a New Use and Need for

RUSTSOLVO

THE PRODUCT WITH OVER A THOUSAND USES

The handy double top RUSTSOLVO squirt can

RUSTSOLVO—the greatest solvent ever discovered—is chemistry's greatest gift to the boat owner and repair man. For this wonderful liquid eats rust like water quenches fire. It is an all around handy man that takes its place with wrench, screw driver and oil can as tool box necessities.

You can't name a place or job on your boat or engine where RUSTSOLVO won't help. It makes big jobs little, long jobs short, hard jobs easy. It saves dollars in time, labor, temper and damage prevented. The first can you try will show you a whole world of new uses, simply because you never saw nor used anything so effective before.

RUSTSOLVO cuts rust, red lead, white lead, carbon, shellac, paint, tar, dried or burned oil or grease, green corrosion on brass or copper, battery corrosion, etc, etc. And still it positively cannot injure metal, wood, cloth, rubber or your hands and is absolutely NON-INFLAMMABLE.

Unconditional Money-Back Guarantee

Prove at our risk what RUSTSOLVO will actually do for you. Your money back for the asking if it doesn't do all we claim or all you expect.

Just a Few of the Things Rustsolvo Will Do on a Boat

Cleans, Cuts, Dissolves, Removes Anything That is Stuck—

Rusted Nuts, Bolts, Metal Screws, Wood Screws, Lag Screws, Thumb Screws.

Pipe Connections, Water Jacket Plugs, Exhaust Fittings, Muffler and Exhaust Connections.

Rusted Spark Plugs, Pistons, Piston Rings, Hand Hole Covers, Water Pumps, Bilge Pumps.

Corroded Battery Terminals, Electric Terminals, Connections, Wires, Switches.

Rusted Couplings, Joints, Pins, Links, etc., in Spark, Throttle and Clutch Controls.

Rusted Steering Gear Parts, Pulleys, Chains, Wheels, Wire Rope, Rudder Post and Quadrant.

Hinges, Locks, Catches, Thimbles, Rigging, Deck Hardware, Deck Plates.

Folding Anchor Flukes, Rings, Anchor Chains, Windlass, Capstan, Hoists, Blocks.

Tanks, Air Tanks, Air Whistle Connections, Galley Stoves, Plumbing Joints.

Rusted Shaft Couplings, Flywheels, Gears, Propellers, Keys, Taper Pins, Set Screws.

And You'll Find New Uses for RUSTSOLVO Every Day Aboard

Works quick—just squirt a few drops and give it a few moments to soak in. Acts like magic.

Send This Trial Coupon To-day

Don't deny yourself the great convenience of RUSTSOLVO. Keep a can always handy. Use it on repair jobs and overhaulings. Use it when you clean up the engine and other parts. A few drops here and there at the right time keeps your boat ship-shape—everything working right all the time.

Order a can to-day—NOW

And give us the name of your hardware or supplies dealer so we can make it easy for you to get RUSTSOLVO the next time.

THE RUST PRODUCTS COMPANY of AMERICA

Dept. M-91 **64 East Lake St., Chicago, Ill. U. S. A.**

The Rust Products Co., Dept. M-91, 64 E. Lake St., Chicago

I wish to take advantage of your special introductory offer on RUSTSOLVO. Please send me a full pint can by prepaid parcel post.

I enclose P. O. Money Order for $1.00.
Send the package C. O. D., $1.00.
(Mark out one line.)

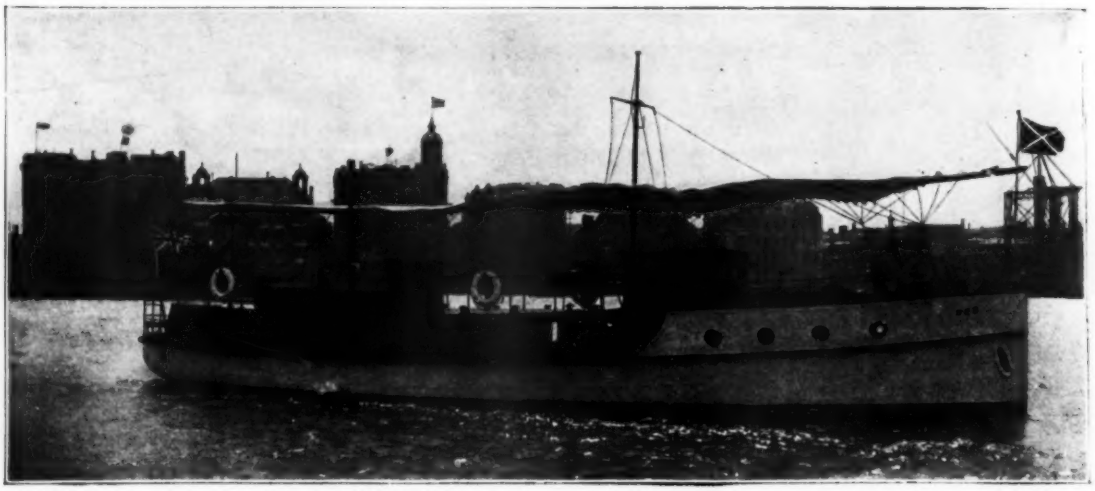
Also send free booklet on RUSTSOLVO USES.

NAME .....

ADDRESS .....

CITY ..... STATE .....

My Dealer is ..... Town .....



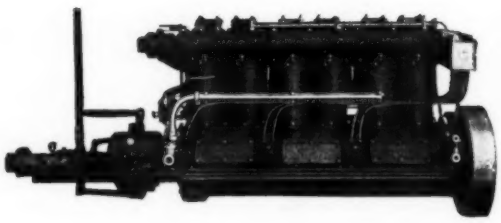
"Frisbie an' I" in Shanghai

Frisbie VALVE-IN-HEAD MOTOR

THIS 63-foot steel motor yacht was recently built by Jardine, Matheson & Co., Shanghai, China. She is equipped with a pair of 75 H. P. Frisbie Valve-in-Head Motors, twin screw type, that drive her along at an 11-knot gait.

Whether you navigate American or foreign waters, and whether your object is pleasure or profit, you can't beat the "friendly" Frisbie for power, reliability and economy.

Write for illustrated and descriptive catalog.



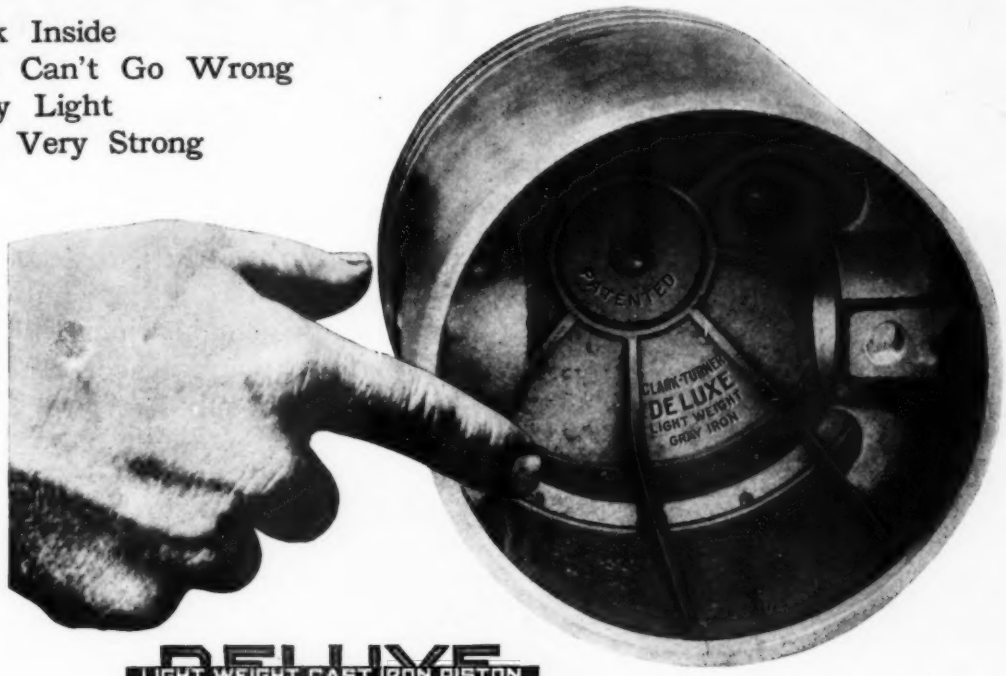
10 *Sizes:* 1-6 *cylinder;* 5-75 *H.P.*

Frisbie Motor Company

7 College St., Middletown, Conn.

Advertising Index will be found on page 126

Look Inside
You Can't Go Wrong
Very Light
and Very Strong



DELUXE
LIGHT WEIGHT CAST IRON PISTON
"The Successful Light Weight Pistor" ©

More Speed with Less Gas

—and with less oil consumption, less vibration, less up-keep expense

DELUXE light weight cast iron pistons installed in marine motors produce, as in automobile, truck, tractor, or other motors, the astonishing result of actually giving the motor more power and more speed with a lower fuel consumption.

This is accomplished by the lighter weight of the DELUXE piston, by its cooler running and by its minimum expansion.

These and the great strength of the DELUXE piston are achieved by its scientific, patented construction. The reinforcing ribs under the head and down the skirt give such unequaled strength that a thick heavy head and wall are unnecessary. Weight is saved simply because less iron is used.

These reinforcing ribs rapidly radiate heat away from the piston head and wall. A cooler running piston results and this, with the fact that there is less metal in the DELUXE piston, means minimum expansion.

DELUXE pistons may be fitted very close, holding compression, running without noisy slap, saving oil and reducing carbon troubles.

Can you imagine a more ideal combination in a piston than super-strength, great durability and minimum expansion, combined with light weight?

That combination, found only in the patented DELUXE, means more power and speed with less fuel and up-keep, and the end of many motor troubles.

Order from our nearest distributor listed in Chilton Automobile Trade Directory, (Red) Automobile Trade Directory and Might's Canadian Automotive Directory.

Patented and Manufactured by

Clark-Turner Piston Company
Incorporated
Los Angeles, California

For over 1200 Makes of Automobiles, Trucks, Tractors, Airplanes, Motorcycles and Marine Engines.
For Sale by all First Class Dealers and Repairmen

Fishing Boat "Bandeirante" propelled by 50 H. P. Dodge Heavy Oil Engine

The gauge of service

Theoretical establishment of success in a marine engine is of little interest to the modern marine man. Heavy Oil engines are so similar in general principle that only actual performance gives acceptable proof of the success of any heavy oil engine.

Dodge Heavy Oil Engines, Marine type, are daily proving in dozens of installations in many waters, that the Dodge application of heavy oil engine practice is thoroughly successful.

A five-size range eliminates over-or under-powering; unit cylinder construction retains the same simplicity in a six-cylinder engine that is found in a one. As a main power plant, or an auxiliary, or built into a generating unit, a Dodge Heavy Oil Engine may always be relied upon to give the exacting service that marine usage demands.

Power Boat "Dora" with 25 H. P. Dodge Heavy Oil Engine installed in salmon trailing service

DODGE

Heavy Oil Engines
Marine Type

We will respond immediately to inquiries from accredited dealers desirous of handling Dodge Heavy Oil Engines in their localities.

Tug "Hioma" with 37½ H. P. Dodge Heavy Oil Engine installed

Dodge Sales and Engineering Co.
Mishawaka, Indiana, U. S. A.

Advertising Index will be found on page 126

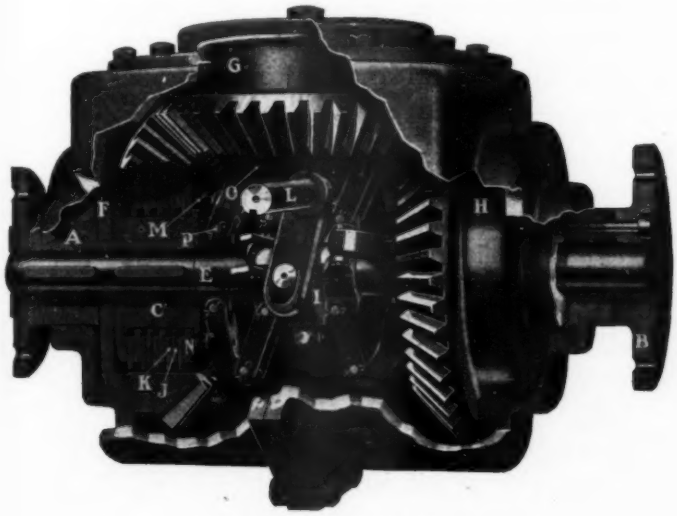
A Better REVERSE GEAR —and Why It Is Better

McKinnon Reverse Gear

HERE at last is something entirely new in marine reverse gear design that has already demonstrated itself superior to any other make or type of gear on the market.

The McKinnon Gear is simpler, stronger and more durable than any other type of gear. It contains just three large-tooth bevel gears which are always in mesh. There are no brake bands, sliding gears or small planetary spur gears. Both the forward and reverse drives are controlled by two big nine-plate multiple disc clutches. The whole mechanism operates in a bath of oil.

This gear gives the same speed ahead and astern. It can be instantly reversed at full speed. The clutches will slip enough to absorb any jar and protect the gears from sudden strains. The capacity of the clutches is so great that they may be intentionally slipped for considerable periods without overheating.



Actual installations have proved the McKinnon Reverse Gear especially suitable for large boats and powerful motors, particularly for heavy work boats, where hard service without trouble or adjustment is necessary.

Write today for full data, together with report of test with Sprague electric dynamometer by Prof. Vose, of Case School of Applied Science, Cleveland. The McKinnon Gear has shown remarkable results in both laboratory and actual service tests.

Four sizes ready for delivery.

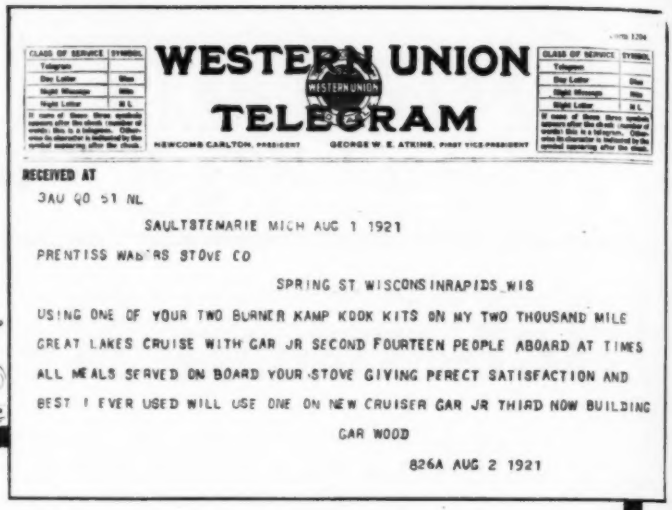
No. 1 transmits 4 H.P. per 100 R. P. M. **No. 3 transmits 13 H.P. per 100 R. P. M.**
No. 2 transmits 8 H.P. per 100 R. P. M. **No. 4 transmits 20 H.P. per 100 R. P. M.**

Other sizes in construction.
Absolutely guaranteed for one year.

McKINNON IRON WORKS COMPANY

ESTABLISHED 1880

ASHTABULA **OHIO**



WESTERN UNION TELEGRAM

NEWCOMB CARLTON, PRESIDENT — GEORGE W. E. ATKINS, FIRST VICE-PRESIDENT

RECEIVED AT

3AU 40 51 NL

SAULTSTEMARIE MICH AUG 1 1921

PRENTISS WABERS STOVE CO

SPRING ST WISCONSINRAPIDS WIS

USING ONE OF YOUR TWO BURNER KAMP KOOK KITS ON MY TWO THOUSAND MILE GREAT LAKES CRUISE WITH GAR JR SECOND FOURTEEN PEOPLE ABOARD AT TIMES ALL MEALS SERVED ON BOARD YOUR STOVE GIVING PERECT SATISFACTION AND BEST I EVER USED WILL USE ONE ON NEW CRUISER GAR JR THIRD NOW BUILDING

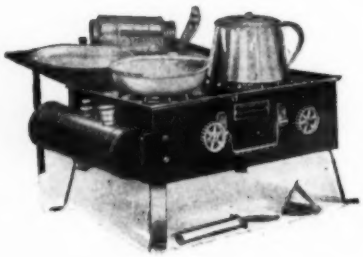
GAR WOOD

826A AUG 2 1921

KAMP Auto KOOK KIT

on

The "Gar Jr. II"



THIS is the two burner Auto-Kamp-Kook-Kit now being used by Commodore Gar Wood. It is the regular stock size, retailing at $17.50 with equipment, or $15.00 unequipped.

YOU'LL always find Auto-Kamp-Kook-Kit in good company—and always, where service and efficiency are demanded, you'll find Auto-Kamp-Kook-Kit delivering the goods.

Auto-Kamp-Kook-Kit is the most efficient, best made, most compact portable gasoline stove on the market. Burns motor gasoline, gives a hot steady blue flame that will not blow out in a thirty mile wind, folds up like a suit case with all equipment inside—light, compact, easy to carry.

Made in several sizes from the one burner at $10.00 to the Six Party Suit Case Outfit at $47.50.

At your dealer's or direct by express

PRENTISS-WABERS STOVE CO.

108 Spring Street
Wisconsin Rapids, Wis.

NOTE

Following the unusual success of Auto-Kamp-Kook-Kits in use on motor boats, we have been requested by motor boat manufacturers, jobbers, and owners to produce a stove especially made for marine use. The result is our new "Auto Galley Kook Kit". This stove is made of galvanized iron, brass and copper thruout, making it suitable for salt water as well as fresh. Has rail around top to prevent utensils from sliding off, and separate gas tank to be mounted on deck.

Write for descriptive folder.

Advertising Index will be found on page 126

KERMATH

If You Want the Best, Get a Kermath

SCORES of people have fooled around with marine engines of no known standard or value with the usual result—a small first cost saving and no end of trouble and continuous expense in the long run.

What you want is a motor that has but practically one cost—the first.

That's the famous Kermath.

For years the Kermath has been recognized as the world's standard under all conditions and all tests.

The Kermath is always dependable and, being designed right, it operates with the utmost economy.

Let us give the actual evidence. Let us send you the names of Kermath owners. Let them tell you of their own accord what their experience has been with Kermath and with other marine engines.

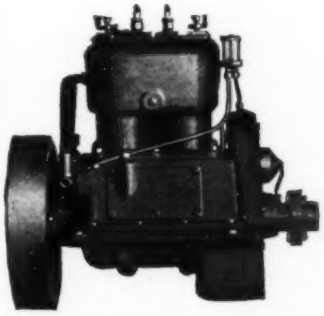
Don't buy in the dark. Get all the facts from all the sources you can. Then you cannot go wrong.

Get acquainted with the Kermath dealer in your locality. Get his expert judgment.

We will gladly send you his name and address and you'll find him a mighty good man to cultivate.

Kermath literature on request describing every individual size motor.

"A Kermath Always Runs"



Kermath 4-5 and 6-8 H.P.

This illustrates one of the smaller size Kermaths which we are now building.

Our Kermath booklet gives a complete description of every size Kermath. Write for it.

Kermath 4 cycle marine motors 4 to 40 H.P. Price, $230 to $1650. Immediate delivery. Address Dept. "D."

KERMATH M'f'g Co.
DETROIT MICHIGAN.

MoToR BoatinG Books for Boatmen

All Published by MoToR BoatinG—All Non-Technical and Authoritative

MOTOR BOATING PRACTICAL HANDBOOKS—6 VOLUMES

Volume I —Practical Motor Boats and Their Equipment.....$1.50
Volume II —Practical Motor Boat Building 1.50
Volume III —Practical Things Motor Boatmen Should Know..... 1.50
Volume IV—Practical Marine Motors..... 1.50
Volume V —Practical Motor Operation and Maintenance..... 1.50
Volume VI—Practical Suggestions for Handling, Fitting Out and Caring for the Boat..... 1.50

The books measure 7 x 10 inches and are handsomely bound in cloth. Over 1,000 pages. Price of Practical Handbooks $1.50 per volume or $7.50 per set of Six Volumes.

THE IDEAL SERIES

Volume I—Designs of Ideal Motor Boats and How to Design a Motor Boat.....$2.00

This volume describes in detail how to design a motor boat. It also contains complete plans of 30 Cruisers, Runabouts and Auxiliaries. The plans include lines, table of offsets, interior plans, profiles, construction details, etc. There is no book published at the present time which describes in everyday language the details of designing a boat according to your own tastes. The plans of Ideal Cruisers, Runabouts and Auxiliaries are complete in every particular. They include the best of the plans published in MoToR BoatinG during the past several years. The plans include boats of from 20 feet in length up to 40 feet. The drawings are all to scale and large size.

Volume II—How to Build Sixteen Ideal Motor Boats $2.00

This book gives complete information for building the following boats:

10-foot mark boat, 12-foot outboard motor boat, 12-foot speed boat, 12-foot bangabout, 13-foot sea skiff, 16-foot sharpie, 18-foot runabout, 20-foot monoplane, 20-foot hydro-runabout, 20-foot knockabout, 20-foot tunnel stern, 22-foot V-bottom runabout, 25-foot V-bottom cruiser, 25-foot round-bottom cruiser, 28-foot cruiser (Consort II).

Every article is fully illustrated with working drawings and no information or instructions are missing which would be of assistance to the novice to build his own boat.

Both of the Ideal Books are printed in large type on extra fine paper. They have been edited by Charles F. Chapman, editor of MoToR BoatinG.

Price of Ideal Books, $2.00 per volume or $5.00 per set of 3 volumes.

A New Book of Boat Plans
Twelve Complete V-Bottom Designs
Ideal Series, Vol. 3
by William H. Hand, Jr.

Plans Prepared Expressly for MoToR BoatinG

This new book is the most valuable ever published for the amateur builder or anyone desiring to have a V-bottom boat built by his own builder.

The plans contain outboard profile, lines, inboard, construction and interior arrangement plans, sectional views and complete table of offsets. Accompanying each design is a description of the boat and a full set of specifications taking up step by step each feature of the boat's construction, how it should be built and the proper material to use.

Plans and specifications of the following boats are included: Edith, a 15-foot runabout; Jane, an 18-foot runabout; Katharine, a 30-foot cruiser; Dorothy, a 25-foot runabout; Zenith, a 25-foot cruiser; Cyclone, a 36-foot auxiliary; Eclipse, a 40-foot express cruiser; Magnet, a 28-foot cruiser; Tornado, a 45-foot auxiliary schooner; Broncho, a 29-foot cruising runabout; Shark, a 21-foot utility runabout; Claire, a 36-foot express cruiser.

Price of Twelve Complete V-Bottom Designs...$2.00

(If ordered with the 2 other volumes of the Ideal Series, the price of the 3 books will be $5.00.)

Motor Boatmen's Charts and Log Sheets
Published by MoToR BoatinG

Charts printed on heavy cardboard 8½" x 11" and punched to fit standard loose leaf folder.

Contain name and location of all principal ports and harbors, distances, compass courses and sailing directions. Invaluable for use on small boats and motor yachts. The set now includes the following charts:

Series A

No. 1—Western End of Long Island Sound.
No. 2—Eastern End of Long Island Sound.
No. 3—Block Island Sound.
No. 4—New York Harbor.
No. 5—Boston Harbor.
No. 6—Buzzards Bay.
No. 7—Block Island to Vineyard Sound, including Narragansett Bay.
No. 8—Delaware Bay.
No. 9—Chesapeake Bay, Part I, Upper Part.
No. 10—Coast of Maine, Portland to Rockland.
No. 11—Hudson River, Kingston to Albany.
No. 12—Chesapeake Bay, Part II, Central Part.

Series B

Series B Charts Nos. 13 to 24 are in the course of preparation, and will be forwarded as ready. Series B is as follows:

No. 13—Lake Erie—Eastern Part.
No. 14—Lake Erie—Western Part.
No. 15—Hudson River, New York to Kingston.
No. 16—Lake Champlain.
No. 17—Erie Barge Canal.
No. 18—Massachusetts Coast.
No. 19—New England—Newburyport to Portland.
No. 20—Cape Cod Bay.
No. 21—Maine, Monhegan to Eastport.
No. 22—Chesapeake Bay, Part III, Lower Part.
No. 23—St. Lawrence River and Thousand Islands.
No. 24—Biscayne Bay.

MoToR BoatinG has also published a log sheet to fit the standard 8½" x 11" loose leaf folder. Each sheet contains spaces for such data as time of passing various aids to navigation, names of aids, magnetic and compass courses, distances, patent log readings, speed of boat, revolutions of motor, wind direction and force, condition of weather and sea, depths of water, fuel, time of high and low water, etc., etc.

Prices

Charts 25 cents each or $1.50 per set of 12 (Series B will be sent as published).

Log sheets $1.00 per set of 50 sheets.

Loose leaf binders (canvas bound) to hold charts and log sheets, $1.75.

Prices for all books of Practical Series, Ideal Series and V-Bottom Designs. Nine books in all.

If Purchased Separately.....$15.00 If ordered all at one time..... 11.00
All Books, 24 charts, log sheets and binder. Ordered together 15.00

MoToR BoatinG, 119 West 40th Street, New York

Advertising Index will be found on page 126

DEVOE

Do You Buy Paint the "Pig-in-the-Poke" Way?

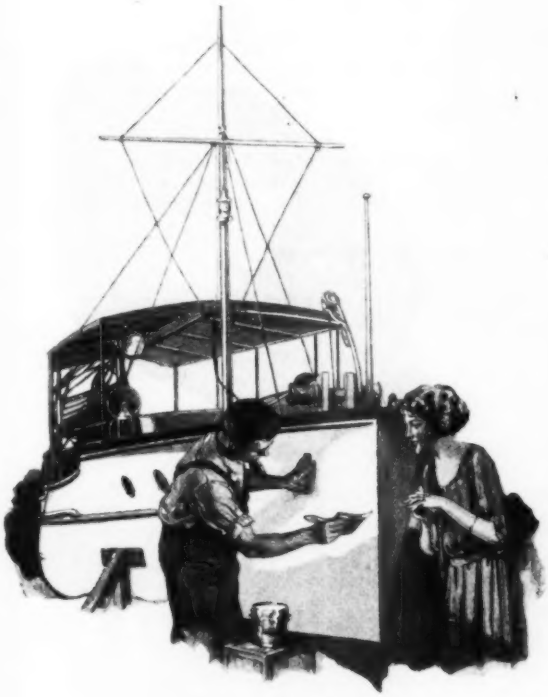
PAINTS may look alike in the can. But a year or more after application their true merit shows. So after all, there is only one way in which you can choose paints — on the maker's reputation.

When you use Devoe Paint Products you are *sure* that they have been honestly and skillfully made; you are *sure* of unfailing quality.

It is worth something to be free of risks; of disquieting doubts, of uncertainty!

The Devoe reputation, won during 166 years of paint making, stamps these products "22 Karat."

There's a Devoe Product for every requirement on every kind of boat.



Manufactured by

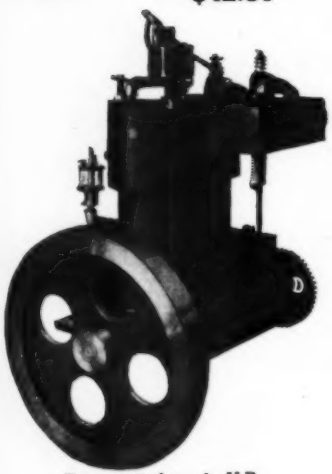
Devoe & Raynolds Co., Inc.

New York — *Paints, Varnishes, Stains, Enamels, Brushes, Insecticides* — Chicago

DEVOE & RAYNOLDS CO. INC. THE FIRST AMERICAN PAINT MAKER FOUNDED 1754

DUNN MOTORS

Single Cylinder, 2 H.P.
Bore 3¾", Stroke 4"
$42.50



Two Cylinder, 4 H.P.
Bore 3¾", Stroke 4"
$75.00

Two Cylinder, 8 H.P.
Bore 4¼", Stroke 5"
$125.00

The Lowest Priced Four Cycle Motors Made

Kerosene or Gasoline Fuel

IF you want a genuine four cycle motor at the lowest possible cost, don't fail to investigate the Dunn Motors. They give you the undoubted advantages of four cycle design at a cost about the same or less than ordinary two cycle motors.

The low cost of Dunn Motors is due to their simplicity of design and construction. Dunn prices speak for themselves. They are just enough to cover essential materials and workmanship. There are just so many necessary working parts in an engine, and anything beyond this means unnecessary expense for the buyer.

Hundreds of Dunn Motors are in use and it is surprising how many testimonial letters we receive from satisfied users. Many a Dunn owner says he would not change engines for others of higher price.

When you buy a Dunn, you don't get a fancy engine but you get one that's worth the money. We have aimed to supply a satisfactory motor for the man who doesn't care for fancy finish but wants the most power and service for his money.

The prices quoted include complete equipment, propeller, shaft, couplings, coil, spark plugs, mixing valves and oil cups. Foreign buyers should add 10% to cover cost of boxing for export and delivery F.O.B. steamer at New York City.

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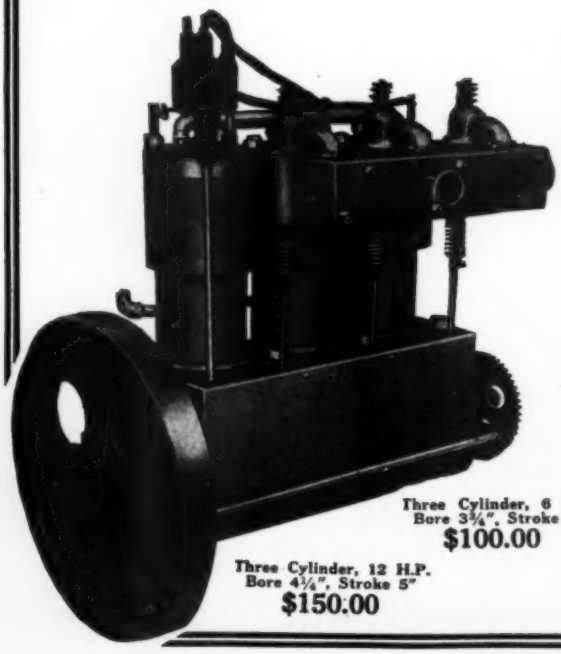
OGDENSBURG N. Y., U. S. A.

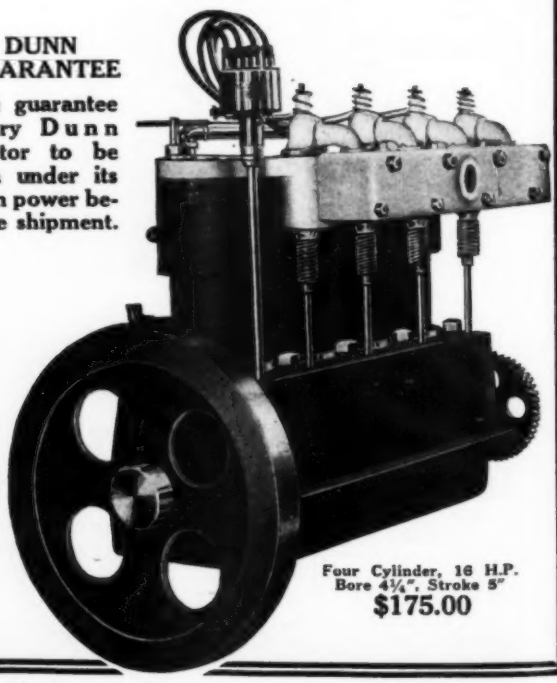
DUNN GUARANTEE

We guarantee every Dunn Motor to be run under its own power before shipment.



Three Cylinder, 6 H.P.
Bore 3¾", Stroke 4"
$100.00

Three Cylinder, 12 H.P.
Bore 4¼", Stroke 5"
$150.00



Four Cylinder, 16 H.P.
Bore 4¼", Stroke 5"
$175.00

Advertising Index will be found on page 126

Evinrude Playgrounds No. 7
A beautiful stretch of the Ohio River at Madison, Indiana. More than 1,000 Evinrudes are in use on this river.

Motor Boating— Ten Miles for a Dime!

UP the river to your favorite picnic spot, across the lake to a neighboring resort for an evening's entertainment or off for a day's fishing—miles of waterway are just a pleasant jaunt when your row-boat or canoe is Evinrude-powered.

A turn of the flywheel and you breeze away, for a half hour ride or an all day cruise with no oar-work to spoil the fun. Yachtsmen find the Evinrude the ideal power plant for dinghy or tender—always dependable and a big time-saver. Makes such a handy craft for use at the races.

And think of the economy of this husky, little motor! Only a penny a mile for gas and oil. A nickel an hour—a whole afternoon for a quarter.

Two Horse Power
Automatic Reverse
Built - in - Flywheel
Magneto

The Evinrude is the world's standard power plant for watercraft, gradually developed and perfected by a great organization through a period of years. Its dependable, vibrationless power is known wherever navigable water flows.

See the Evinrude at your sporting goods or hardware dealer's. Ask him why it costs only $10 a year. Or send for catalog.

EVINRUDE MOTOR COMPANY

476 Evinrude Bldg., Milwaukee, Wis.

Distributors:

69 Cortlandt St., New York, N. Y.
780 Commonwealth Ave., Boston, Mass.
440 Market St., San Francisco, Calif.
211 Morrison St., Portland, Ore.

Service Stations:

130 Chartres St., New Orleans, La.
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316 Main St., Cincinnati, Ohio
10-12 N. Howard St., Baltimore, Md.
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73 Columbia St., Seattle, Wash.

EVINRUDE

DETACHABLE MOTOR FOR WATERCRAFT

BEFORE

Use Jeffery's Waterproof Marine Glue

AFTER

And Enjoy Every Minute of Your Outing

DOES YOUR BOAT LEAK?

Send for our Booklets, "How to Make Your Boat Leakproof" and "Marine Glue—What to Use and How to Use it"

Any old boat, so long as the frames are in fair condition, can be made water-tight by following the instructions in the above booklets. This applies to anything that floats, from a canoe to a yacht. Wood or steel. Put your leak troubles up to us, and we will help you to stop them.

For more than 75 years Jeffery's Marine Glue has been the choice of the foremost boat builders of the world.

Jeffery's is a product that has not varied from the strict line of quality—it is not a competitive commodity made to meet a price.

JEFFERY'S WATERPROOF MARINE GLUE
IN ALL THE VARIOUS GRADES

For sale by all Yacht, Boat and Canoe Supply Houses, Hardware, Paint and Oil and Sporting Goods Dealers.

L. W. FERDINAND & CO., 152 Kneeland St., Boston, 11, Mass.

Advertising Index will be found on page 126

Knox
VALVE IN HEAD

"Steady Service"

Sturdy Enough for Work Boats
Fine Enough for Any Boat

THE Knox Twenty is one of the most advanced 20 H.P. marine motors on the market to-day. It is suitable for any pleasure boat or work boat that requires a medium or high speed engine of this size. It operates efficiently at any speed up to 1400 R.P.M. Four cylinders of 3½" bore and 5" stroke give unusually high power and efficiency for their displacement, due to the superior valve-in-head Knox design.

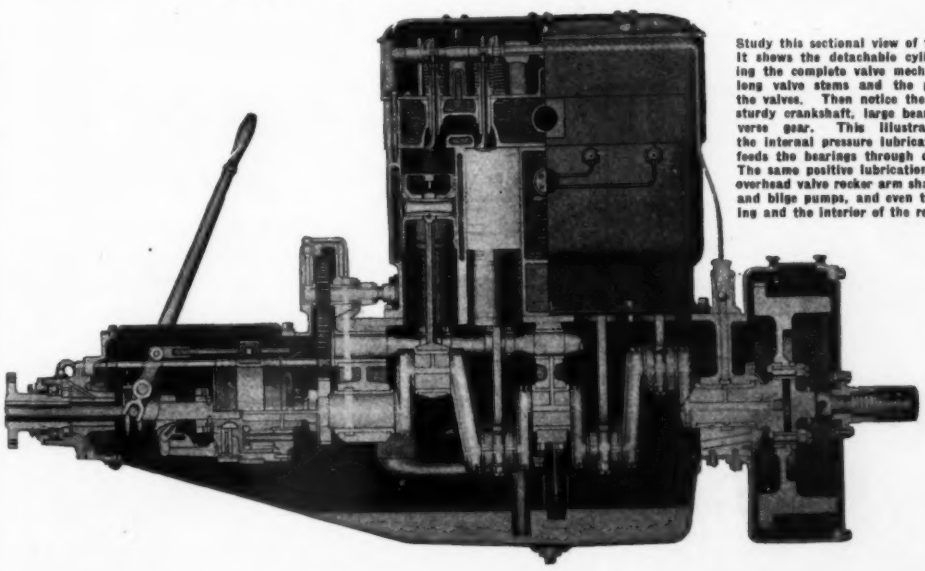
The rating of 20 H.P. is easily developed at 900 R.P.M. It gives 11 H.P. at 500 R.P.M. and over 30 H.P. at 1400 R.P.M. These ratings are not merely estimated or indicated but are the results of actual load tests on our Sprague electric dynamometer, the most accurate testing instrument known to engineering science.

The Knox Twenty has back of it over twenty years' experience in building high grade engines and is the product of one of the most complete marine motor plants in the business. Many installations during the past summer have proved the quality and sturdy ability of the Knox Twenty.

If you know engines, you will find our Bulletin both interesting and instructive. It explains the wonderful lubrication system, the remarkable valve design, etc. Write for this to-day.

KNOX MOTORS ASSOCIATES
SPRINGFIELD, MASSACHUSETTS, U. S. A.

Made in New England at Springfield, Massachusetts, by Knox Motors Company, also manufacturers of Truck, Tractor, Passenger Car Engines and Industrial Power Sets.



Study this sectional view of the Knox Twenty. It shows the detachable cylinder head carrying the complete valve mechanism. Note the long valve stems and the perfect cooling of the valves. Then notice the long pistons, the sturdy crankshaft, large bearings, built-in reverse gear. This illustration also shows the internal pressure lubricating system which feeds the bearings through drilled crankshaft. The same positive lubrication is carried to the overhead valve rocker arm shaft, the circulating and bilge pumps, and even to the thrust bearing and the interior of the reverse gear.

TOPPING BROTHERS

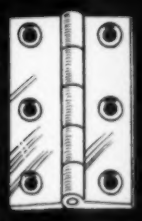
EST. 1885

Heavy & Marine Hardware

122 Chambers St New York

BRONZE FITTINGS

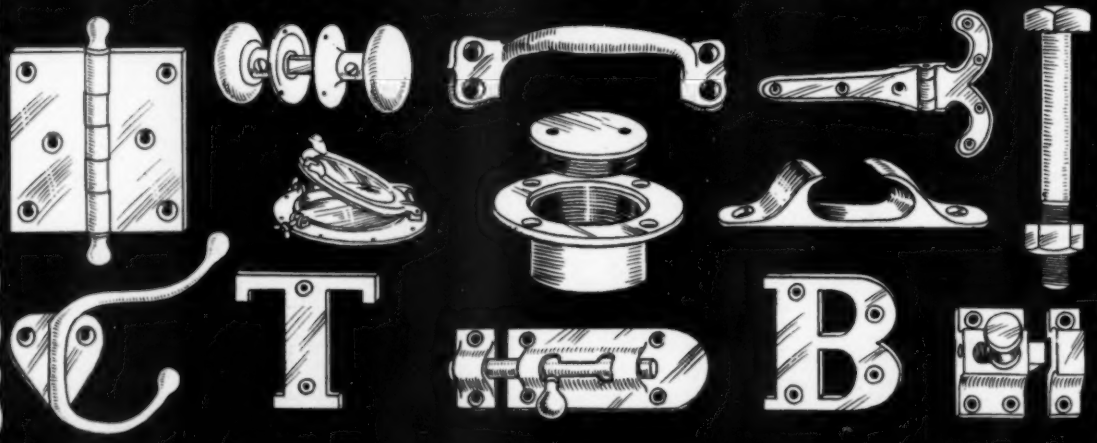
SHIP JOINERS & CABIN HARDWARE



Brass Deck Plates
Ship Locks
Latches

Brass Port Lights
Ship Knobs
Hinges

BRONZE DECK & CABIN FITTINGS



CONTRACT SPECIFICATIONS SOLICITED FOR COMPLETE FITTINGS FOR MOTOR BOATS YACHTS AND SHIPS

Advertising Index will be found on page 126

Chicago's Big Race Meet

(*Continued from page 28*)

F. G. Ericson of Toronto. The Canadian, owner and driver of Miss Toronto, winner of the Webb Trophy at last year's Regatta at Burlington, was thus saved from being a Watcher only as he had been during the Peoria regatta. Miss Toronto was not entered in either of the Illinois events.

Walter B. Wilde, president of the M. V. P. B. A., as usual came up smiling from his dip in the Lake when his Meteor Third overturned Saturday. This too though he lost thereby the winning of the 705 class. His ill-luck, however, was good luck for Bartholomew and Bryant, owners and drivers of the B. & B., which, coming in second the first two heats of the 705, won the third. Bartholomew suffered a severe burn on his arms and hands Friday when as he leaned over to adjust the engine he was thrown against a hot pipe.

The Pekin trio, Selby, Conover and Steinmetz, grinned from one side of their mouths at the winnings of their little craft Miss Margaret, which held majority points in the 151 and 478 classes and groaned from the other at the misfortune of the Princess Pat, forced to retire from the contest at the close of the first day's events with opening seams and cracked ribs. Princess Pat, a newcomer in the field, is a right royal craft with a new hull built by Padgett of Quincy in the almost record time of 12 days and equipped with the engine taken from the

(*Continued on page 116*)

Turtle Wins Cruiser Championship

(*Continued from page 25*)

several which had short stoppages would have brought them more closely together still, had they made non-stop runs. In commenting on the results the committee noticed the remarkably strange fact, that in practically all cases the revolution rate as declared by the owner was from 75 to 100 revolutions less than that established during the race by actual test. This is all the more strange since the weather and sea conditions were not conducive to the highest rates of motor speed.

In only one or two instances can this discrepancy be accounted for by reason of different propellers or other equipment. In other cases the committee concluded that boat owners in general do not know what their motors are able to do. The method used was thoroughly justified by the results and only goes to prove that much of the fault found with the rules should instead be transferred to the shoulders of negligent boat owners and committee men. From the results of this race it can be concluded that the handicapping and measuring rules of the American Power Boat Association are as nearly correct as it is possible to devise any practical workable rules. Naturally where an assortment of boats of all sorts and types are assembled to race together, it will be found that some seem to be better adapted to the racing rules than others. Those boats which depart radically from the general average conditions and never win a race can generally be shown to be faulty in one respect or another.

Of the fourteen boats which started in the race on the morning of August sixth, twelve actually finished. Turtle, owned by Vice Comm. T. Farmer, Jr., of the New York Athletic Club, was the white hope of the club. This confidence was well placed for after a strenuous race Turtle was found to be the winner. Kodak, owned by R. J. Haslinger, of the Hudson River Yacht Club, was second, while Viva, the representative of the Tamaqua Yacht Club, owned by A. R. Pettit, was awarded third place.

The weather conditions the night before the race promised an ideal day. A dinner had been arranged at Travers Island for the entertainment of the visiting yachtsmen and all were in good spirits while the race prospects were discussed.

At the start of the race all boats got away promptly. Spendthrift II and Margaret were delayed slightly by carbureter difficulties. Diana, the fast cruiser built by Comm. A. B. Cartledge, soon outstripped the fleet being closely pursued by Spendthrift II. Turtle maintained a good third position and these three quickly lost all the rest astern. Norma Claire, a Red Bank Cruiser from Belmar, hung on to Turtle very closely and after several hours stopped for a short time. The heavy beam seas caused by a strong southerly wind made the going uncomfortable and rough. All the sediment in gasoline tanks found its way into the little strainers carried on the fuel lines and closed off the supply. This caused the stoppage of Norma Claire and several others. It seems that strainers generally fitted are not nearly large enough for the purpose. After this condition had been remedied Norma Claire improved speed noticeably and soon passed Turtle. She further overtook Spendthrift II and was the second boat to finish at Shelter Island. Among the remainder of the fleet things were happening also. Senator Bill, through gasoline shortage due to clogged strainers, backfired and a flare-up of gasoline drippings at the carbureter took fire. Rear Comm. La Roche, her owner, applied himself to the task of subduing the blaze with fire extinguishers to such good effect

(*Continued on page 114*)

Choice of America's Leaders

—men whose preferences unfailingly lead to that which is most worthy.

Comfortably cruising on cool and windswept waters they find the most perfect diversion from exacting business cares in their luxurious, roomy

MATHIS-BUILT HOUSEBOATS

In them is combined the necessary change of scene —ever-shifting at the owner's will—with all home comforts and ease. In Winter, with bows Southward, these sturdy, seaworthy houseboats mean escape from the rigors of ice and snow to the palm-fringed shores of balmy Florida. In Summer, a comfortable cruise to cooler Northern water away from the tiring, trying heat.

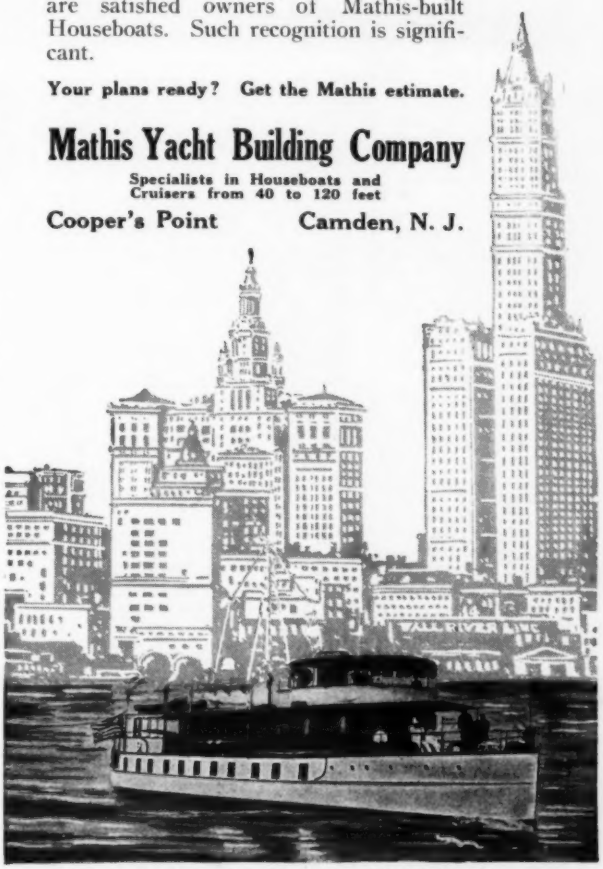
Many of America's leaders—men who have the means to buy what they determine best—are satisfied owners of Mathis-built Houseboats. Such recognition is significant.

Your plans ready? Get the Mathis estimate.

Mathis Yacht Building Company

Specialists in Houseboats and Cruisers from 40 to 120 feet

Cooper's Point Camden, N. J.

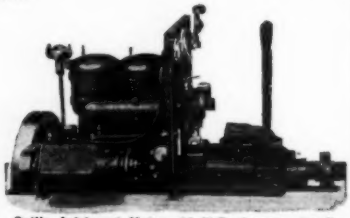


Shown above is the 106 ft. "Leonie"—Mathis-built.

CAILLE

MARINE MOTORS 2½ to 20 H.P.

FOR nearly a quarter of a century we have confined ourselves to producing motors particularly suited for pleasure and work boats up to 35 feet in length. As a result of this concentrated specialization, Caille motors, for this type of craft, are renowned the world over. We build them in sizes ranging from 2½ to 20 H.P.—one to four cylinder designs—2 and 4 cycle types—fitted for salt or fresh water and to operate on gasoline or kerosene. Send for catalog and state size of boat to be powered and class of service.



Caille Aristocrat Motor—14 H.P. 4 cycle—4 cylinder. Electrically started

Type of boat for which Aristocrat motor is particularly suited

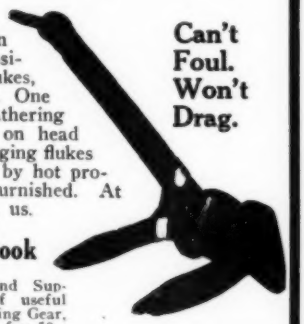
The Caille Perfection Motor Company
49 Caille Bldg. Detroit, Mich.

Bites Instantly

The *WC* Navy Anchor takes hold at the first pull of the cable, and the harder the tug, the firmer the hold.

WC Stockless Navy Anchor

Solid wrought iron shank; free from "pin hole." Lies in holding position at angle of 55° to flukes, per Navy Specifications. One piece head; no mud gathering pockets. Tripping fin on head absolutely prevents dragging flukes up. Heavily galvanized by hot process. Proper shackle furnished. At your dealer's or write us.



Can't Foul. Won't Drag.

Get this Valuable Book

"Sea Craft Suggestions and Supplies"; over 275 pages of useful hints about Moorings, Steering Gear, Compasses, etc. Sent only for 50c.

WILCOX, CRITTENDEN & CO., Inc.
4 South Main Street Middletown, Conn.

Turtle Wins Cruiser Championship

(*Continued from page* 113)

that it was put out before damage was caused. He was painfully burned on the hands, however, in doing so. Margaret, in charge of Capt. Yeo and E. C. Headley, Chairman of the Racing Commission of the A. P. B. A., happened along and finding Senator Bill helpless and out of the running, proceeded to take him in tow and brought him the remainder of the way to Shelter Island, a distance of 35 odd miles. This sportsman-like act on the part of the Margaret's crew in abandoning their chances in the race to salvage an unfortunate contender is noteworthy.

After rounding the light at Orient Point a very nasty beam sea was encountered which caused the boats to pitch and roll in an alarming fashion. As Turtle rounded the light a bigger sea than any previously encountered struck her on the port bow and dropped a tremendous shower of spray on board. This was accompanied by a crash from the galley as the cups hanging on the cup hooks were bounded loose and landed in a heap of splinters on the galley floor. The experiences of other boats were similar and this particular stretch of Gardiners Bay was the worst encountered on the entire run.

Gardenia, the committee boat, at the finish was in charge of H. A. Anderson and the well known Victory Jackson. Both of these ex-racers having decided to refrain from racing this season in order to let some one else have a chance at the prizes, accounts for their absence from the contenders. Not being content with total inactivity they assisted by taking times at the finish. The last of the fleet came into the beautiful little harbor at Deering Cove, Shelter Island, just before dark. An entertainment committee from the Shelter Island Yacht Club promptly invited the visitors to a dinner dance in their honor and this very hospitable entertainment occupied the greater part of the evening.

Promptly the next morning the committee consisting of Messrs. Headley and Cartledge representing Philadelphia and the writer undertook the determination of the winner. First there were all the observers' reports to examine, then there were ratings to compute for a dozen different boats and after these were complete the time allowances and handicaps to work out. The average man who races his boat has no idea of the amount of work involved in these details. In a race of this nature it occupied the entire time of three men for nearly five hours. And anyone who believes it is easy can have the job After the deliberations of the experts it was found that Turtle was the winner with Kodak and Viva next as previously mentioned. As an example of the equity and fairness of the rules it will be noted that the corrected time for the first six boats to finish the race comes within a good half hour. In a race of this length and under the weather conditions prevailing this is a remarkably close result and it was generally conceded that the rules were practically perfect. Complete summaries of all starters in the race follow:

SUMMARY OF RESULTS, CRUISER CHAMPIONSHIP RACE, AUGUST 6, 1921

Boat	*Owner*	*Rating*	*Allowance*	*Elapsed Time*	*Corrected Time*	*M.P.H.*
Turtle	T. Farmer, Jr.	38.10	1:21:42	8:34:23	7:12:41	10.7
Kodak	R. J. Haslinger	33.73	2:30:58	9:46:53	7:15:55	9.4
Viva	A. R. Pettit	35.22	2:04:54	9:34:31	7:29:37	9.6
Diana	A. B. Cartledge	45.13	scratch	7:37:14	7:37:14	12.1
Spendthrift II	Halsey & Van Amringe	42.30	0:29:40	8:13:04	7:43:24	11.1
Falcon	P. W. Johns	35.54	1:59:40	9:46:56	7:47:16	9.4
Norma Claire	Barlow & Margerum	43.70	0:14:32	8:03:19	7:48:47	11.4
Uthena	C. N. Platt	35.18	2:05:31	10:25:55	8:20:24	8.8
Marilene	H. M. Williams	41.83	0:35:05	8:57:17	8:22:12	10.3
Fleetwood	J. P. Stoltz	36.03	1:51:58	10:15:28	8:23:30	9.0
Querida	C. H. Oakley	41.76	0:35:54	9:09:22	8:33:28	10.0
Bluebell	J. H. Wallace	39.18	1:07:19	10:18:41	9:11:22	8.9

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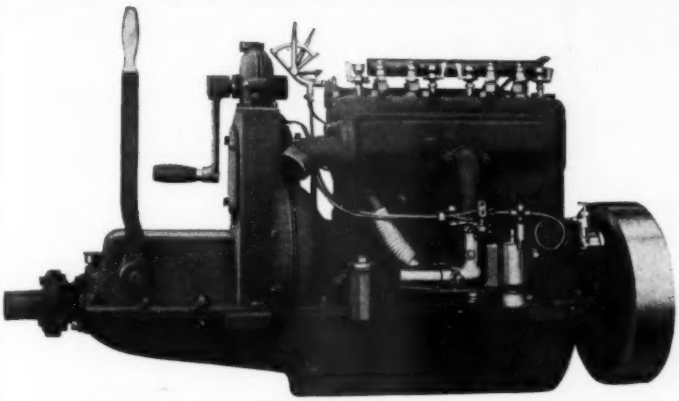


Red Wing Thorobred
THE MOTOR WITH POWER TO SPARE

"Baby Doll"
Our Newest Motor

MAYBE you have wished before now that you might buy a Red Wing "THOROBRED" in a smaller size, embodying the same qualities found in our models which have been on the market for years. Hundreds of others have wished it too. The demand became so insistent for a smaller Red Wing that we are now manufacturing the new Baby Doll of the Red Wing Family—our 10-14 H. P. It's sure the candy for the smaller boats or craft where larger power is not desired.

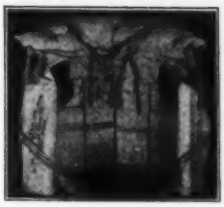
We will gladly send you the facts on this, and on our other models up to 40 H.P., if you will write us today. They burn either kerosene or gasoline.

Eastern Distributors: Verrier, Eddy Co., 222 E. 42nd St., New York, N. Y.; W. H. Moreton Corp., 780 Commonwealth Ave., Boston, Mass.; W. E. Gochenaur Mfg. Co., 631 Arch St., Philadelphia, Pa.; Hutchinson Bros., Alexandria Bay, N. Y.

RED WING MOTOR COMPANY, Dept. B, Red Wing, Minn., U.S.A.

G.H.MASTEN CO., Inc.

Masten
TRADE MARK



Only type that has Government Approval for Overseas.

New York Distributors for

Caille Motors and Regal Gasoline Engines

Caille 5 Speed Outboard Motor

Manufacturers of

Motor Boat Tops, Spray Hoods, Life Rafts, Life Preservers, Cushions, Swimming Belts, Cabin Upholstery, Draperies. Builders of Row boats, Motor boats, Runabouts, Cruisers

MASTEN PATENT REVERSIBLE LIFE PRESERVER

For Inland Waters, Rivers and Harbors, equip your boat with Masten Government Approved Life Preservers

Learn to swim in half an hour with a Masten's "Liberty" Swimming Belt
Your dealer will supply you.
Or $2.00 by mail

For sale by leading dealers

G. H. MASTEN COMPANY, Inc.
38 EAST 9TH ST., NEW YORK, N. Y.

GRAY-ALDRICH COMPANY, Inc.
84 Atlantic Avenue Boston, Mass.

Rebuilt Engines

All engines thoroughly rebuilt unless otherwise specified.

262	12 H.P.	Fairbanks-Morse Type "T" Special Elec. Stationary kerosene	$450.00
271	9 H.P.	Fairbanks-Morse Type "T" Special Elec. Stationary kerosene	425.00
272	6 H.P.	Lathrop Standard Model	150.00
275	80 H.P.	Wolverine, 3 cyl. 4 cyc. Propeller & Rev. Gear	2,500.00
277	16 H.P.	Lathrop, 2 cyl. 2 cyc.	285.00
287	24 H.P.	Lathrop, 2 cyl. 2 cyc. & rev. gear	425.00
298	24 H.P.	Lathrop, 2 cyl. 2 cyc. & rev. gear	450.00
299	24 H.P.	Lathrop, 2 cyl. 2 cyc. no rev. gear	350.00
300	3 H.P.	Faultless Seine Purser, 2 winch heads	135.00
302	5 H.P.	Wolverine with rev. gear	175.00
303	16 H.P.	Lathrop, 2 cyl. 2 cyc. with coupling and propeller	310.00
307	16 H.P.	Lathrop, 2 cyl. 2 cyc.	267.00
312	20 H.P.	Lathrop, 2 cyl. 2 cyc.	380.00
313	24 H.P.	Lathrop, 2 cyl. 2 cyc.	420.00
314		48" x 32" p. Hyde Right Hand propeller, 3 blade, bored	150.00
325	11 H.P.	Knox, 2 cyl. 2 cyc. shaft & propeller (as is, in good running order)	150.00
326	20 H.P.	Regal, 4 cyl. 4 cyc. with rev. gear & magneto (as is, in good running order)	450.00
329	24 H.P.	Lamb, 4 cyl. 4 cyc. with rev. gear	498.00
331		Paragon Reverse Gear Model "C"	75.00
332		Paragon Reverse Gear Model "C"	75.00
337	16 H.P.	Lathrop, 2 cyl. (not yet overhauled)	
339	12 H.P.	Lathrop, 2 cyl. Light Model with shaft & propeller	225.00
340	11 H.P.	Murray & Tregurtha, 2 cyl. 4 cyc. Reverse Gear and Magneto (as is, not overhauled)	250.00
341	150 H.P.	Van Blerck, Model EE-8, 6 x 6, Brand new with electric starter	1,665.00
342	160 H.P.	Van Blerck, Model J-6, 6 x 6, factory rebuilt, electric starter, no storage battery	1,250.00
343	215 H.P.	Van Blerck, Model E-8, 6 x 6, new with electric starter	1,765.00

TRENHOLM FUEL VAPORIZERS for using kerosene fuel on four cycle engines. Vaporizer circular on request.

"Those who go to sea must be able to see."

Comet Marine Generators

A NEW LIGHTING UNIT

for the open motor boat or any installation where it is not convenient to install a regular switchboard.

MS Control on T-65 Generator

Comet Generators with MS CONTROL combine in one unit generator, reverse current relay, switch and fuse.

MS Control may be mounted on any size Comet Marine Generator. Easy to install, simple and efficient.

Send for Bulletin No. 5.

COMET ELECTRIC CO.
1241 St. Paul St. Indianapolis, Ind.

Chicago's Big Race Meet

(*Continued from page* 113)

former Vamp. Princess Pat entered the 2200 class and made a remarkable showing in the first lap of the first heat, and then was disabled. She is expected to rank with the 60 milers at least and will probably make a good showing at the Labor Day races in Peoria.

The Jinx followed N. J. Kenny too, for his craft the A. K. caught fire as she was putting up a good race against such speedsters as Miss Chicago, Baby Sure Cure and Arab IV on the first day. The fire was extinguished without either boat or men receiving serious injury. The driver of the A. K. is Walter Durflinger, who is one armed and yet handles the wheel with dexterity. Kenny, with Bailey who is a boat builder as well as owner and driver of Badger Girl IV, Al Boyce, L. A. Whipple and Frank Weber, headed the crew of 25 men who made the trip up from Pekin and Peoria on two barges propelled by two tugs and carrying or towing 14 of the racing boats. The trip was made through the Illinois river, the I. & M. canal and the Chicago drainage canal and according to all reports is worth a good yarn of its own. Chas. Barrick and M. E. Ellis made the same trip on the Dorsey cruiser P. Y. C. towing two more of the racers.

We can not leave the Winners and the Wailers, without mention of that goodly organization the Hydro Hell Divers, for did not three members re-earn their right to membership by overturning into the lake? We refer to Messrs. Wilde, Blakely and Strong and suggest that the gentlemen be given high office in the order in return for their exploits.

As to the Workers! Of course the Winners and Wailers too are Workers as already admitted and as a glimpse into the boat room at any time during the racing days would prove. Other Workers include the enthusiasts who promote and carry to successful completion racing programs. This brand of Workers—or perhaps they would prefer to be called Officials—at Chicago included Sheldon Clark, Commodore of the Chicago Yacht Club and chairman of the racing committee of the Pageant of Progress, to whose untiring efforts most of the credit for the success of the event is due; Robert Tarrant of Chicago and a corps of unnamed Workers from the Chicago boat clubs; J. W. Sackrider of Racine, Wis., official starter; Otto Berthell of Detroit; Dr. R. H. Daniels, Commodore of the Illinois Valley Yacht and Canoe Club; A. T. Griffith, secretary of the M. V. P. B. A.; and a bevy of motor boat magazine men. Ask any of the last group and he'll tell you the magazine men are the hardest Workers of all for not only do they help at the regatta, but theirs it is to preserve the races in print after everyone else has quit and gone home. Commodore Clark and his assistants maintained headquarters during the races on a barge anchored off the pier in front of the grand stand and which formed the starting and finishing point for the races.

Still other Workers are found in the horde of mechanics, derrick men and general utility men who turned the boat room into a bedlam of sound—pounding on metal, the raucous screech of the derricks, the medley of bellowed orders—and a chaos of constant activity; who slept on cots in the boat room so that from bed they might keep a watchful eye on their precious charges at rest on their cradles.

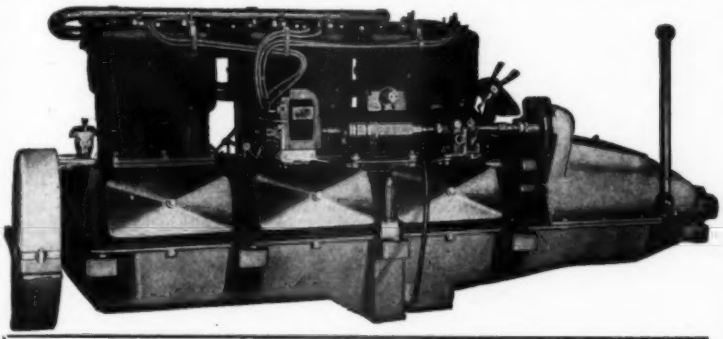
Finally—last, but by no means least—the Watchers! Two hundred thousand was the estimate placed by Commodore Clark one day on the crowds that completely filled the mammoth grand stands which had been erected on the north side of the second and third tiers of the Municipal pier; that overflowed to every possible vantage point for viewing the course from the pier; and that blackened the shore line of the pier approaches and the extension of Lake Shore Drive facing the Harbor. It was unanimously declared to be the largest crowd ever assembled in Chicago to view water sports. These Watchers gathered long before 2 o'clock, the hour set for the first afternoon races and lingered long after the final boom of the starter's cannon had proclaimed the day's program at an end. It was a jolly crowd, an eager crowd, that rose to its feet with wild enthusiasm when closely matched contestants swept down the final stretch towards the judges' barge and cheered the winner with gusto; that gurgled its pleasure when the big fellows were let out at top speed, and gasped its mingled horror and secret delight when a flying speedster tipped her drivers into the water. Motor boat races have been few in Chicago, and so it was a crowd that heretofore had probably thought a single step hydroplane the name of a new dance step, and King-Bogetti a kind of cheese, but it recognized a good sport when it saw it, and clamored for more.

At the west end of the pier, the large veranda on a level with the second tier was used as the Mayor's box and here every day, from 25 to 50 persons viewed the races as guests of Mayor William Hale Thompson. From here also race results were megaphoned to the crowds on all sides. The Mayor, who is responsible for the Pageant of Progress Exposition, visited the box daily and voiced his approval.

Advertising Index will be found on page 126

Seems They Never Wear Out

THAT'S the reputation Scripps motors enjoy everywhere—the very first models made over 16 years ago are still plugging along faithfully. Of course there is wear, but mighty slow—the right material, proper lubrication, husky bearings, means for ready adjustment, and efficient factory service and cooperation all contribute years of economic service after an ordinary engine is shot.



In order to show the world the reliability of our motors we built "The Detroit," a 35' x 8' motor boat, equipped with a 12-15 H.P. SCRIPPS MOTOR, and ran her, under her own power, every inch of the distance from Detroit, Michigan, to St. Petersburg, Russia (now Petrograd). The start was made from Detroit on July 2, 1912. She arrived in St. Petersburg September 13, 1912—6008 miles with ABSOLUTELY no trouble. Ask Thomas Fleming Day, her skipper, or Walter Moreton of Boston, they will tell you. No other manufacturer has dared to attempt a similar demonstration of reliability. A Scripps Motor will run when nearly upside down, as demonstrated by Larsen's trip through the Niagara Rapids in October, 1911. Do these wonderful demonstrations of reliability and stamina mean anything to you?

And easy to handle, too—electric starters on all models, pressure lubrication that automatically oils all parts (oil cans and grease unnecessary)—large hand hole plates for instant accessibility—all enclosed for cleanness and quietness.

Now reduced prices for the coming year make Scripps engines unquestionably the greatest marine engine value obtainable. Investigate — there are power plants for every type of boat, pleasure or commercial, two, four and six cylinder, 10 to 125 horsepower.

SCRIPPS MOTOR COMPANY

5819 Lincoln Ave. **Detroit, Mich.**

GASOLINE FILTERS

More of the 1,001 WC Products

Gray Gasoline Filter: A neat, compact filter containing several screens or strainers of different mesh. Placed in your gasoline supply pipe line, it insures pure fuel in your combustion chamber. Screens easily removed for cleaning by simply unscrewing the cap. Equipped with patented three-way valve. In smooth plain bronze finish. Polished to order at additional charge.

WC Gasoline Filter or Settler: Of larger capacity than Gray Filter, and will operate for longer periods without draining. For use where fuel contains large proportion of dirt or water. Screen easily removed for cleaning; dirt and water drawn off through pet-cock at bottom. Larger inlet and outlet provided to permit use with fuel oil; may be bushed to smaller size if desired. Smooth plain bronze finish with copper screen.

Get This Handy Nautical Guide

"Sea Craft Suggestions and Supplies" solves those daily "puzzlers" that few know how to handle. Tells how to Box the Compass; what is Proper Ground Tackle; gives hints on Steering Gear, etc.; describes WC Dependable Marine Hardware; tells uses. Compiled from 70 years' experience in making marine fittings. Sent prepaid for 50c.

WILCOX, CRITTENDEN & CO., Inc.
4 South Main St., Middletown, Conn.
Established 1847

Rainbow Again Proves Her Supremacy

(*Continued from page 46*)

All three boats were out to win. Orlo III made a request to install a new starting battery which request was promptly denied by the committee as the rules particularly provided that no repairs or changes should be made between heats and that all repairs must be made during racing time and then only with parts and material carried on board.

In the 15 minutes time which is allowed before each race for adjustments to power plants the crew of Orlo III made strenuous efforts to get both motors started with the one battery and were successful just as the starting gun boomed.

Rainbow was again first over the line followed by Miss Sterling. Orlo III was only a few seconds late and then a battle royal began. At the end of the first lap Rainbow led Orlo III by 9 seconds and at 4 miles by 24 seconds, at 6 miles by 21 seconds and at 8 miles by only 15. Two miles further on Orlo III was 12 seconds behind and at the 12 mile mark Rainbow's lead was cut down to 7 seconds. Everyone expected that Orlo III would go into the lead on the next lap but that racing general who was at the helm of Rainbow outguessed the thousands who were watching the race and brought Rainbow past the judges 12 seconds in the lead. This last spurt was too much for Orlo III's power plant. After that lack of preparation in installation began to tell and the superiority of thorough preparation by Rainbow's owner became more and more apparent. The 1920 winner forced herself further and further into the lead and crossed the finish line, 150 miles from the start, 42 seconds ahead of Miss Sterling. Orlo III struggled gamely to complete the circuit but at the 40 mile of the third heat after Aye Aye Sir finished she withdrew from the course.

The best boat won and the next best came in second. Commodore Eagan gets a leg on the $5,000 Gold Trophy presented by Carl G. Fisher and the $1,000 prize presented by James A. Allison. For his prize Commodore Eagan has chosen a sterling replica of the Fisher Trophy, a most appropriate prize which will always be a reminder of the splendid and wonder race which he sailed and the real sportsmanship which he displayed at all times.

A complete summary of the results will be found on page 45.

The story of the Buffalo Races would be incomplete without a brief mention of the efforts of a few of those in attendance to make the regatta the success which it was. Of course, Commodore Ralph Sidway, Vice Commodore Humphrey Birge and Fleet Captain Clarence Sidway, of the Buffalo Club, were the prime movers and did everything humanly possible to make the visitors in attendance feel at home.

Arthur J. Utz, of the Hall-Scott Motor Car Co., worked hard and long both previous to and during the regatta. It was through Mr. Utz's efforts that the regatta was originally slated for Buffalo and it was also through his efforts that the entry list was the largest of any race which has yet been held. Mr. Utz appeared to have a firm grasp on all the details connected with the race meet and while he is too modest to lay claim to its success, yet, to him all credit should go. Harry Elliott, working with Mr. Utz as Chairman of the Race Committee, made a fine team.

Commodore Sullivan, of the Buffalo Yacht Club, was in charge of the judges of the course and performed his duties in a very efficient manner. Ex-Commodore Hubbard, of the Launch Club, as chairman of the Board of Judges, saw to it that the racing rules were obeyed and that there was no fouling on the part of the contestants. The arrangements made by Commodore Eagan at his boathouses for the caring for the competing craft could not have been better arranged. Every wish of the contestants was taken care of satisfactorily.

Charles Alt, of the Buffalo Gasolene Motor Co., was Chairman of the Technical Committee. This committee had entire charge of the boats between heats and saw to it that no adjustments or repairs were made to the power plants or hulls. Mr. Alt's committee furnished the observers and the watchmen to watch over the boats when they were not actually racing.

Charles Walbridge, of the Buffalo Launch Club, was in charge of the patrol. Except for a few brief moments when a strong squall caused a number of boats to drag their anchors on to the course the patrolling was done in the most efficient manner. Robert Olin, of the Launch Club, was in charge of the start and acted in his usual efficient manner.

The trade and industry was largely represented at the races. W. C. Morehead, President of the Great Lakes Boat Building Corp., Milwaukee; Ira Hand, Secretary of the National Association of Engine and Boat Manufacturers; George F. Crouch, John L. Hacker, Arthur Griese, Hugh Palmer, of the Albany Boat Corp.; Frederic K. Lord and Wilbur H. Young, of the Columbian Bronze Corp., all acted in an official capacity.

The timing and scoring was in charge of Harry Parsons and William Meier, of Cleveland. Of course Ed Gregory was there with one of his Bear Cats. It is hard to see how a race would be a race without Ed and at least one of his famous runabouts.

BUFFALO BULL

An Anonymous Contribution

If you are thinking of going to Buffalo and want definite information as to the merits of Buffalo hotels in general, and one in particular, you might obtain some enlightening and original views on the subject by communicating with Billy Morehead.

Art Griese stepped blithely from the deck of the Plow Boy to the dock of the B. L. C. on Friday, wearing his new Speedway smile and his Winton khaki suit. He received a warm welcome from the gang.

Wilbur Young has not yet applied for a patent on his Pyrene electric light extinguisher.

Art Utz worked like a beaver all through the meet and suffered several disappointments. His good nature never deserted him, however, and his one bit of solace came in the Bear Cat Race on Sunday.

"Dinty" Moore made the crowd of judges, timers, other officials, press men, ordinary spectators, etc., etc., on the Judges' Stand, gasp and duck during some of his stunts on Saturday. Adam Penton will no doubt carry a kink in his neck for some time.

All "Rosie" did was unpack his plates and charge up and down the Judges' float like a 'varsity full-back turned loose.

Harry Greening's class as a helmsman just stuck out all over in the Free-for-All Races Sunday. It was real chummy of Griff Clarke to let Harry have a little fun and excitement with Miss Sterling.

Albert Hickman, known in the fraternity as "Hick," managed to while away the time by designing several new hulls, while Orlo III was making the turns.

Rosita was last reported making good time along the bottom of the river toward the Falls. Life is simply a series of just one darned bath after another for Ned Blakely.

Nick Nack crept cautiously out of the slip just prior to the Mile Trials, took one look at the dancing bosom of the Niagara River, shivered a little, and Tick-tacked back to cover.

Sylvester Eagan, owner and driver of Rainbow, I could no doubt have been unanimously elected Mayor of Buffalo had the election been held after the Buffalo Trophy Races were over.

Gus Montkale (phonetic spelling of surname) evidently holds just as high an opinion of the beds at the B. L. C. as he does of Charlie Wallbridge's ability as a driver of fast runabouts. The Ex-King of Sweden was certainly in great form Saturday.

Boy, page Commodore Chair!

Ye Editor Chapman, demon Starter, Judge, Timer, Scorer, etal, broke engagements with impunity.

George Grouch left the whole gosh darn Regatta flat Saturday night accompanied by Bill Trans-Atlantic Nutting, who vainly sought to dispel the huge gobs of gloom that encircled the usually genial George.

Gerald White also got out early Saturday night with a whole freight carload of "beachcombings."

Judge Hand, after finding most of the boats on the river too small for him, felt more at home on the Judges' scow, where he finally cast anchor on Saturday. Ira came out flatfootedly against quarter-inch planking as far as he is concerned.

"Eric," with his maple leaf back and his coon tail chapeau, looked like a reincarnation of Davie Crockett.

After the Regatta was over, everyone admitted that Steward Dorn was the only winner.

Charlie Criqui had his hands full—so was the Sterling barge.

For sheer Mack Sennet comedy stuff, you should have seen Chief Judge Harry Vars trying to keep out of the way of the turning buoy at the lower mark.

The Reception Committee saw to it that the Reception Committee had a fine time. The Reception Committee enjoyed it immensely.

Berlin, after bequeathing all of his personal assets to Steward Dorn, took his last few nickels and tried to break the slot machine banks.

The Fiji Islands, Inc., project is now well under way, according to a statement from its incorporators.

Watching the Aye Aye Sir making the turns, one was impressed with the idea that fifty shower baths in one day must be rather a strenuous program.

Had a genuine thrill on Sunday when someone from the B. L. C. claimed that loaded shells had been substituted for blank ones in the cannon on the Judges' stand. Investigation, however, proved that our fears were groundless.

Got to give Fred Lord and the Old Colony Club credit. They certainly were on the job.

Reminded one of an old cavalry stunt when Ralph Sidway

(*Continued on page 121*)

Inverted V-bottom and Surface Propeller Boats

SEA SLED

Hickman Patents in all countries

Trade-Mark Reg. U. S. Pat. Off.

Fisher-Allison Trophy Series, Buffalo, August 11-14, 1921

Mr. George Leary's 35-foot Sea Sled Orlo III established a new world's record for marine-engined displacement boats:—

57.79 statute miles per hour,

breaking the previous record, 47 miles, held by the Sea Sled *Orlo II*, by 10.79 miles.

The best record made by a screw propeller displacement boat was 44.03 statute miles, or over 13 miles slower than the surface propeller Sea Sled.

Orlo III was running at about the same power-weight ratio as the screw propeller boats.

This notable racing result is the final demonstration of the greatly increased efficiency of the Surface Propeller and Sea Sled hull over that of the older type motor boat. It applies not only at these high speeds but at all speeds down to those of the cruiser.

Orlo III also established new 2-mile and 50-mile records, failing to win the Fisher Trophy because of starter and ignition troubles.

THE SEA SLED COMPANY

WEST MYSTIC, CONN.

LUNKENHEIMER Automotive Accessories

For use on all types of Internal Combustion Engines

Recognized by Builder and User as the true standard of excellence in the marine field.

Their unfailing reliability, characteristic of Lunkenheimer Products, is a contributing factor to the successful operation of Motor Craft everywhere.

Lunkenheimer Automotive Accessories perform the functions for which they are intended with a certainty that insures safe and economical operation, and the high quality materials used coupled with the Lunkenheimer method of manufacture means permanence and low maintenance cost.

In addition to the Accessories shown here a multitude of others are illustrated in our Catalog No. 5-CC—Write for a copy.

Distributors of Lunkenheimer products situated in every commercial centre.

THE LUNKENHEIMER CO.
"QUALITY"
Largest Manufacturers of High Grade Engineering Specialties in the World
CINCINNATI
New York London
Chicago Boston

29-33-33

Gar Jr. II Explores Uncharted Waters

(*Continued from page* 23)

be built, which will be larger and equipped with twice the power of the present Gar Jr.

Fourteen were aboard at the start of the cruise. This may sound like fiction to the owner of the ordinary type of cruiser who looks with disfavor upon the speed cruiser and is accustomed to think of more than four people aboard a 40-footer as too crowded for comfort. This same type of motor boatman, unless he has seen it with his own eyes, would probably not believe it possible to crowd 14 people aboard a boat of the Gar Jr. type, and still have room to navigate the ship, to say nothing of that number living aboard and still being in a fit mental condition to be on speaking terms at the end of the first 24 hours' run.

Yet Gar Jr. was not crowded with 14 aboard. Nor do we believe she would have been overcrowded with twice that number aboard. This is probably due to Commodore and Mrs. Wood's big heartedness and ability to make one feel at home and at ease at all times. Why, during the cruise, time and time again, we would run into a little fishing port, whose entire population might number twenty families, and who probably had not seen anyone from the outside world for weeks and weeks, and who had never seen a boat go faster than 9 or 10 miles an hour, while we dashed into their harbor between the rocks apparently coming from nowhere, at never less than a 35-mile an hour speed. The whole town, so to speak, would flock down to the dock, men, women and children, wondering what sort of an invention of man had suddenly come upon them. When their first timidity had passed, the Commodore would invite them all aboard and then take them all out for a spin at full speed. To have seen the way they enjoyed these few brief minutes makes it certain that not one will forget them as long as they live.

We ran into Jack Fish on a Sunday morning almost entirely out of gas, wondering whether our cruise was to end then and there, and whether our return was to be overland, for we were over 300 miles from the nearest fuel. This was the first location on the north shore for hundreds of miles which can be reached by rail and then only by two freight trains a week, but we found that the station master had a supply of one barrel of gasoline that had been ordered months before by some cruiser which expected to touch at Jack Fish sometime during the summer season of 1921. While a barrel of gas sounded like the entire supply of the Standard Oil Company to that station agent if not to us at that moment, and in fact was more than we had been able to discover during the entire week previous at all our stops along the shore yet it meant only one hour's supply for us. However, it would carry us some 40 miles nearer civilization and this point made us make up our minds that we must have that barrel of gas at all costs or spend the rest of our lives at Jack Fish. Like all those that live in that section the station agent was honest and sincere. Because the gas had been ordered months ago for an expected visitor he wouldn't consent to allow us to have it unless some means be found to procure another barrel to replace it. Arguments of less weight than we used have been known to influence congress, but that had no effect upon this holder of 54 gallons of the precious liquid.

But even though it was Sunday and his day off, yet he got busy with his telegraph keys and talked to every station 100 miles on each side of Jack Fish trying to locate 50 gallons of gas. As most everyone was off duty results were not very good as most of the store keepers who might have a supply of a gallon or two were either attending a picnic or fishing. Finally we suggested that he might like to take a sail with us on Gar Jr., perhaps to the next town, 42 miles further west. Then things began to move. Messengers were sent out to the storekeepers in neighboring towns. Finally one was located and he promised to send all the gas he had by the next freight train, which would be in early Wednesday morning, other neighboring towns promised a supply of from 5 to 15 gallons, so that at last the equivalent of a barrel was assured to replenish the supply at Jack Fish which we were endeavoring to secure.

The town soon learned that the storekeeper was to take a trip on Gar Jr. to Rossport and then it didn't take long to get that barrel of gas into the tanks of Gar Jr., although it had to be brought for considerable distance from the shore.

The keeper of the general store who is the station agent's brother, was also invited to make the trip with their families, and they will be envied by the entire population of Jack Fish for many a day.

Plans were progressing nicely for the start when suddenly someone remembered that there were no more trains scheduled to stop at either Jack Fish or Rossport that day, thus placing a new complication before us. But that didn't take long to settle for the wires were again used and finally headquarters gave instructions for one of the Canadian Pacific transcontinental

(*Continued on page* 121)

Gar Jr. II Explores Uncharted Waters

(*Continued from page* 120)

trains to make a special stop at both Rossport and Jack Fish to pick up the agent and storekeeper. The train's running time between these two points is slightly more than 1½ hours, but Gar Jr. made the distance in nearly a half hour less. Although the station agent had been on duty for more than 20 years, he had never made the trip by water before, but now he has the distinction of making it in faster time than has ever been made before either by land or water.

Another example of the generosity of the Woods in having others enjoy their boat with them is recalled by incidents which happened at Duluth. Our trip up the lake had been the subject of much newspaper publicity, so that every town where we ran in we found that we were expected and many were waiting to get a glimpse of Gar Jr. II. We found that everyone knew her as the boat which had beaten the express train between Miami and New York. It seems as though almost everyone had read about the trip and most everyone mentioned as having read of it in MOTOR BOATING. We had an idea before that MOTOR BOATING's circulation carried it to nearly every locality where there are boats, but we had no idea before of how generally it is read, even in the remotest corners of our country.

While we were at Duluth, which was Gar Wood's home town, an immense reception was tendered to Commodore and Mrs. Wood by the people of Duluth. Naturally Gar Jr. II became the subject of much curiosity and admiration. It seems as though every small boy in town came down to the Duluth Boat Club where she was tied up to give her the once over. It could easily be seen that the ambition of their lives was to take a ride on Gar Jr. And Gar Sr. didn't disappoint them, either. Trip after trip he ran out into Lake Superior with the decks of Gar Jr. II swarming with young America, the best timber in the world for future motor boatmen and many of whom some day will own motor boats due to their sail on Gar Jr. II.

(*To be continued*)

Rainbow Again Proves Her Supremacy

(*Continued from page* 16)

tried to drive Arab standing up. Reason—Driver's seat lost overboard.

Ed Grimm said he wouldn't start Miss Peerless because she couldn't make the turns. He had plenty of company.

When Orlo II took her flop just before the start of the Fisher Trophy Races on Thursday, George Leary, Jr., raised the level of the Niagara River all the way from Bridgeburg to Tonawanda. Hope George's sprained ankle mends quickly.

Hat insurance policies would find a ready sale at future Regattas and all like gatherings of the boating clan.

Sunset and evening star
And one clear call for me
And though there really isn't any bar
At "Saturn" I will be.
(With all necessary apologies)

Maybe you do and maybe you don't
And maybe you would if you could,
But I'm sure that you shouldn't and I know that I wouldn't
Even if Phil Wood would.

Detroit next stop!

Sheriff Waldo is in danger of becoming a motor boat "fan." If he does he will be an enthusiastic one.

Charlie Peabody is some automobile driver. He is best when it rains.

Bill Meier can tell the time to a second. He gets thirsty every so often.

Bob Olin was certainly a busy man. We understand he is qualifying as a soda fountain expert.

Charlie Walbridge is an expert buoy chaser. He qualified in the first round.

Dave Reid, of Hamilton, Ontario, is thinking of enlisting in H. M. S. submarine service. He got in quite a bit of practice during the races.

Mr. Hugh Palmer, of the Albany Boat Corporation, paid a visit to Buffalo on Friday and presented the B. L. C. with a fine porch chair.

Page Commodore Chair.

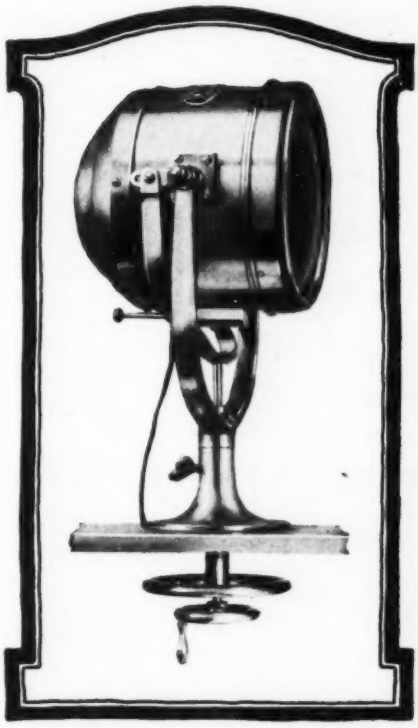
It was good to see Art Hauser on deck. Art is a hard worker but he hasn't lost any weight over it.

"Chap" was on hand as usual and due to his very efficient handling the races were run off as smoothly as clockwork.

Clarence Sidway had a sure enough streak of hard luck with the Bone Dry and as a final effort tried to burn her up. The fireman at the dock seized the hose from the chemical fire engine and emptied his supply of chemicals into the river, but as none of it got in the boat, no damage was done. Clarence then discovered that all the excitement was caused by a closed-up water intake which allowed the motor to heat up so much that the oil was smoking like a Pittsburgh furnace.

LEBBY

LOW VOLTAGE SEARCHLIGHTS



The Best Incandescent Searchlight in the World

LEBBY PRODUCTS DEPT.
SOUTHLAND STEAMSHIP CO.
SAVANNAH, GA.

DEALERS EVERYWHERE

Illustrated Catalog on Request

How Many of These Questions Can You Answer?

(*Continued from page* 29)

60. In which direction should the error mentioned in No. 54 be applied?
61. In which direction should the error mentioned in No. 55 be applied?
62. In which direction should the error mentioned in No. 56 be applied?
63. In which direction should the error mentioned in No. 57 be applied?
64. In changing from true to magnetic courses, or vice versa, should variation, deviation, or both, be allowed for?
65. In changing from magnetic to compass courses, or vice versa, should variation, deviation, or both, be allowed for?
66. In changing from magnetic to compass courses, or vice versa, should variation, deviation, or both, be allowed for?
67. The variation off the Florida coast is 0. Off the coast of Maine 1½ points westerly. If the true course to go from Maine to Florida is SW ½ S off the coast of Maine, what will be the true direction of the same course off the coast of Florida?
68. The variation off the Florida coast is 0. Off the coast of Maine 1½ points westerly. If the magnetic course to go from Maine to Florida is SW x W off the coast of Maine what will the same magnetic course be off the coast of Florida?
69. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is NE x N and your compass indicates NE ¾ N what is the deviation?
70. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is NE x E and your compass indicates N x E½E what is the deviation?
71. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is E and your compass indicates E ½ S what is the deviation?
72. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is S x E and your compass indicates S x E what is the deviation?
73. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is SW and your compass indicates SW¼W what is the deviation?
74. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is WSW and your compass indicates WSW½W what is the deviation?
75. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is WNW and your compass indicates NW x W¼W what is the deviation?
76. In determining the deviation of your compass by putting your boat over a course the magnetic direction of which as determined by the chart is NW x N and your compass indicates NWxN½N what is the deviation?

Solve the following examples:

77. True course NE variation one point E. Find magnetic course.
78. True course NE variation 1 point E deviation ½ point W. Find compass course.
79. Magnetic course SE deviation 1 point E. Find compass course.
80. Compass course NW deviation ½ point W. Find magnetic course.
81. Compass course NW deviation ½ point E, variation 1 point E. Find true course.
82. Magnetic course SW, variation 1 point E. Find true course.
83. True course 225°, variation 11¼° W. Find magnetic course in degrees.
84. True course S 45° W, deviation 5⅝ E. Find compass course in degrees.
85. True course 45° W, variation 11¼° W, deviation 5⅝° E. Find compass course in point.
86. Magnetic course 135°, deviation 5⅝° E. Find magnetic course in degrees.
87. Compass course S 45° E, deviation 5⅝° E, variation 11¼° W. Find true course in degrees.
88. Magnetic course N 45° E, variation 5° 37′ 30″ W. Find true course.
89. True course NE x E ¼ E, variation 1 point W, deviation 1 point E. Find compass course.
90. Magnetic course SW x W ½ W, variation 1 point E, deviation ½ point E. Find true course.
91. Compass course E x S, deviation ½ point W, variation ¼ point E. Find magnetic course.

(*Continued on page* 124)

Advertising Index will be found on page 126

Hacker-Craft

The Latest Hacker Wonder Boat

This double cockpit 28-foot wonder boat is the latest work of John L. Hacker, who claims it his greatest achievement in his experience as a naval architect. Five passengers can ride in perfect comfort, free from all noise, dirt, and spray, and the sensation is such that cannot be had in any other type of boat.

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One 29′3″ Solid Mahogany hull, complete ready for motor. Built for 4 or 6 cylinder Hall-Scott Motor. Will make an attractive price on hull only or complete. Nothing better ever built, and a perfect performer.

DOUGHBOY—35-foot, double cockpit. Forward controls. Solid Mahogany. Six cyl. Hall-Scott Motor. Will do over 35 miles at any time, will carry ten passengers. In perfect condition. Will demonstrate Detroit any time. Owner is getting larger boat. Price for quick sale $6500

LAURA-B—30-foot solid Mahogany, double cockpit type. Powered with FS four cyl. Sterling. Speed up to 30 miles. A fine performer, and in perfect condition. Demonstrate Detroit. For quick sale $5000

We will figure on any high class proposition in a high speed outfit. Quality, performance, and speed guaranteed.

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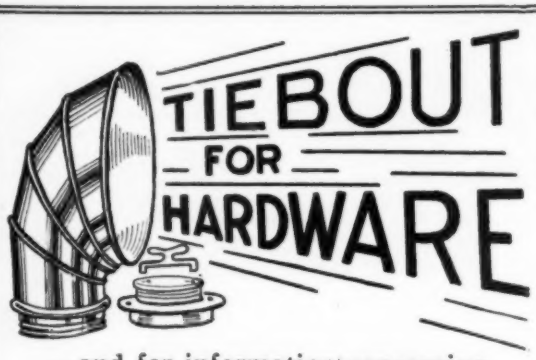

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Full and Semi Enamel Yacht White

Advice and consultation free on all painting and repair work

STEARNS-McKAY MFG. CO.

MARBLEHEAD MASS. USA

How Many of these Questions Can You Answer?

(*Continued from page 122*)

92. Magnetic course E ¾ S, variation 10″ 26′. Find true course.
93. Compass course NE, deviation ⅝ point E. Find magnetic course.
94. Magnetic course 45°, variation 11°, deviation 17°. Find compass course.
95. True course 106° 52′ 30″, variation 10° 56′ W, deviation 4° 06″ E. Find magnetic course.
96. True course ENE ¼ E variation 1 point W, deviation ¾ point W. Find compass course.
97. True course E x N ¾ N, variation 1 point W, deviation ¾ point W. Find compass course.
98. True course 70° 18′ 45″, variation 1 point W, deviation ¾ point W. Find compass course.
99. True course N 70° 18′ 45″ E, variation 1 point W, deviation ¾ point W. Find compass course.
100. Suggest any other compass question which you think has been overlooked and answer it.

An error occurred in the problems used as example on page 106 of the August issue. The correct answer to problem 3 should be NWxN.

The Coast Pilots have been referred to by numbers on different occasions.

The newer editions are no longer designated by numbers but by the letters A, B, C, D, and E.

Names of Those Who Submitted Papers

The following, whose papers were received during July, have passed Lesson No. 1: Sylvester Frazer, J. W. Lindsey, Jr.

The following whose papers were received during July have passed Lesson No. 2: E. C. Barnes, W. H. Haller, W. Roy Halsey, Frank J. Kensler, G. F. Killam, W. C. Kress, C. M. Labunski, John Lang, J. W. Lindsey, Jr.; W. J. Mozart, Homer Pritchett, Walter Monroe.

The following, whose papers were received during July, have passed Lesson No. 3: Grant W. Boomer, H. J. Hyde, James H. McClary, W. M. McVey, Andrew Eppler, John Lang, J. C. Mann, Art Moulton, L. R. Philpott, Mrs. C. A. Philpott, W. N. Shrum, Louis Voyt.

The following, whose papers were received during July, have passed Lesson No. 4: Will B. Barnett, Jean L. Barnes, Percy S. Benedict, Dr. A. B. Bennett, Ylysses L. Berger, Fred H. Berry, James Bertram, Joseph Bister, Wm. Bliss, W. G. Boyden, Henrick Bocke, Seymour M. Bradley, L. F. Brower, John C. Brodhead, H. R. Broll, Wm. A. Butler, Henry Byers, Chas. E. Burch, Geo. C. Bissett, Dr. F. G. Brown, Grant W. Boomer, E. L. Chase, W. A. Cornell, A. L. Coffey, Jr.; Russel Dart, W. H. Goodman, J. E. Gerich, Geo. Holub, Chas. Houlroyd, I. P. Horton, L. H. Howe, Chas. H. Howell, J. A. Howland, H. J. Hyde, Mrs. E. G. Kaiser, John Keller, Edwin Kenyon, J. W. King, Frederic Lewis, J. C. Mann, H. A. Morton, Dr. P. D. MacSween, Don. C. McLean, Jas. H. McClary, Samuel Morley, Ed. J. O'Beirne, C. A. Philpott, Geo. A. Rawson, Arthur M. Reese, Jos. Reinhardt, W. S. Roedel, M. J. Ross, Merle B. Ross, F. Rudolph, Arthur C. Swift, N. P. Shay, O. H. Sherbrook, F. B. Smith, Miss S. Steinmetz, Douglas Taylor, Wm. H. Taylor, O. A. Thomas, Alf. A. Thomas, S. H. Thomas, Geo. H. Thurston, C. P. Tockildsen, H. E. Watkins, F. B. Watson, L. E. Wilson, Frank W. Ward, William Yates, C. S. Young, M. A. Young, E. T. Youngfelt, H. T. Zachgo.

The following, whose papers were received during July, have passed Lesson No. 5: R. Andren, Percy S. Benedict, Dr. A. B. Bennett, Joseph Bister, W. G. Boyden, Henrick Boche, Chas. E. Burch, Henry Byers, Michael Cibener, W. A. Cornell, F. H. Delano, Arthur Ek, I. S. Ellsworth, Wm. R. Folsom, M. B. Gillespie, W. H. Goodman, W. H. Gray, W. C. Gustofsen, O. A. Haen, Rev. A. M. Halver, Geo. Hansen, A. E. Jones, Mrs. E. G. Kaiser, John Kellner, Geo. H. Leland, J. F. Lowcock, W. B. Landreth, H. A. Morton, P. F. McMahon, Frank V. Mitchell, Samuel Morley, Edward Mathews, L. McKenzie, Mason S. Noyes, Rich. S. Pollack, G. A. Patrie, John Reicherter, R. B. Rives, Merle B. Ross, F. Rudolph, G. Schumakoff, Dr. J. F. Schefcek, F. B. Smith, Morton Stelle, P. R. Stephenson, C. P. Tockildsen, Wm. O. Yates, C. S. Young, M. A. Young.

To Handle C-Y-C Generating Sets

The Columbian Bronze Corporation announces the appointment of C. R. Denis to handle the sales of Columbian C-Y-C Electric Generating outfits. Mr. Denis was associated with the Domestic Electric Company, New York Distributor for the Delco-Lite and more recently has been manager of the Fairbanks-Morse Company's Baltimore Branch. He has had wide experience in the lighting plant field and the Columbian Bronze Corporation will shortly be represented by a sales and service organization to handle this branch of their business.

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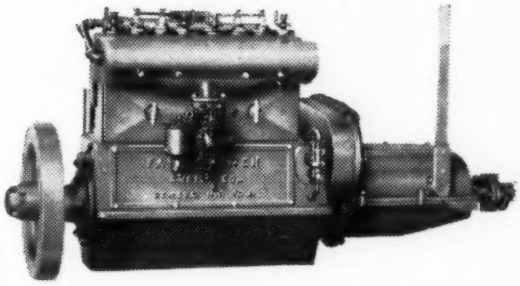
20 Continuous Years of Successful Engine Building Behind Every One of Them



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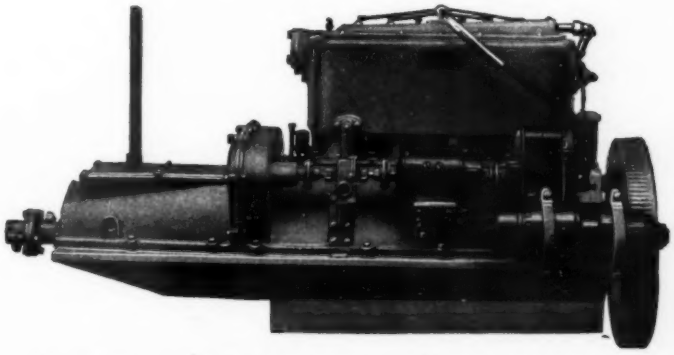
Efficient Dependable Durable

Reduced Prices on All Sizes



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104 LAKE STREET, GENEVA, N. Y., U. S. A.

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BOSTON: 84 Atlantic Ave., Gray-Aldrich Co., Representatives

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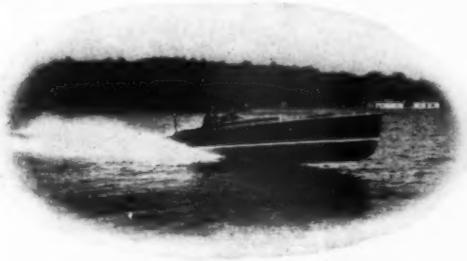
Rainbow's NWA-Balanced Crankshaft

again the Victor over

Vibration

We salute Rainbow I as the most successful racing boat ever built. For this wonderful boat again won the great Fisher-Allison Trophy Race—at Buffalo last month—having won the first Fisher Trophy Race at Detroit last September. Since then time, effort and money without limit have been spent trying to produce a better boat. But Rainbow had this advantage—her crankshaft was specially balanced on the NWA Balancing Machine.



Rainbow I—twice winner of the Fisher Trophy

ONLY perfect balance in crankshaft, flywheel and propeller can defeat destructive Vibration that racks an engine, shakes the hull and causes countless troubles frequently attributed to other sources.

Rainbow I shows the advantages of perfect crankshaft balance. The same hull, the same engine, through two seasons of an active racing career withstood terrific strains and returned victor over many newer and higher powered boats.

All Engine Builders make some attempt to balance their crankshafts. Only those using the NWA Balancing Machine can be completely successful.

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We Solve ALL Vibration Problems. Write Us.

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THE structural perfection of the Burger 36 Ft. Cruiser accounts, in a measure, for its marked seaworthiness and cruisability. But more than this—it represents the results of skillful and authoritative designing ability which is so pleasingly revealed in comforts and conveniences identified only with larger and more expensive boats.

And yet with its cozy interior and roomy cabins, the charming symmetry of the hull and balanced arrangement of the deck cannot fail to create well-deserved admiration and an enthusiastic desire for ownership.

A bridge deck large enough for all; fore and aft cabins for lounging or sleeping quarters or dining-room; a well-equipped galley; an engine room with two bunks and workbench; two toilets; every detail correct—do you wonder now why Burger owners are proud of their 50 ft. cruisers only 36 ft. long?

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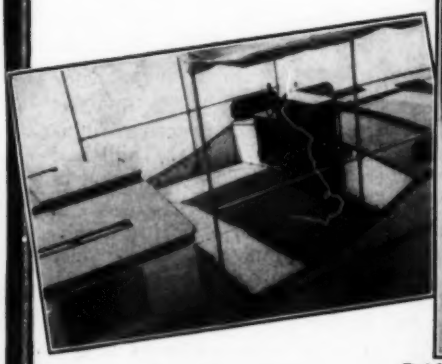
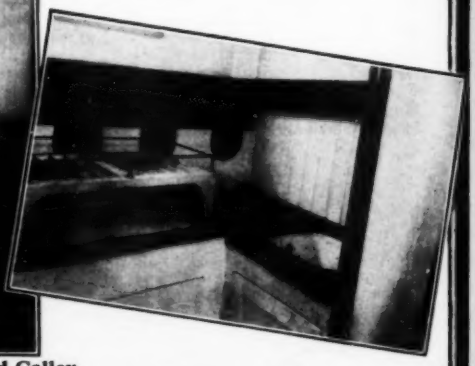
Write for our illustrated book containing photographs and specifications.

The Burger Boat may be inspected in New York waters on appointment. Write us and we will be glad to arrange matters.





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